

Power Sector Reform and Restructuring in Nagaland



**International Management Institute
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LIST OF ACRONYMS

ABT	Availability Based Tariff
ADB	Asian Development Bank
AE	Assistant Engineer
AGM	Assistant General Manager
APDRP	Accelerated Power Development Reforms Programme
ASEB	Assam State Electricity Board
AT&C	Aggregate Technical and Commercial
CAGR	Compound Annual Growth Rate
CE	Chief Engineer
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CERMS	Computerised Revenue Management Systems
CPSUs	Central Public Sector Undertaking
CRISIL	Credit Rating Information Services of India Ltd.
DC	Deputy Commissioner
DFID	Department for International Development (UK)
DGM	Deputy General Manager
DoP	Department of Power
DPR	Detailed Project Report
DTs	Distribution transformers
DVB	Delhi Vidyut Board
EEs	Executive Engineers
FRP	Financial Restructuring Plan
GB	Gaon Burrahs
Gol	Government of India
GoN	Government of Nagaland
GSDP	Gross State Domestic Product
HT	High Tension (lines)
ICRA	Investment Information & Credit Rating Agency
IOC	Indian Oil Corporation

ISGS	Interstate Generating Station
JE	Junior Engineer
KPI	Key Performance Indicators
KV	Kilo Volt
KVA	Kilo Volt Ampere
LDA	Lower Divisional Assistant
LT	Low Tension (lines)
MD	Managing Director
MOA	Memorandum of Agreement
MOP	Ministry of Power
MU	Million Unit
MVA	Megavolt Ampere
MW	Mega Watt
NEEPCO	North Eastern Electric Power Corporation Limited
NER	North Eastern Region
NERLDC	North Eastern Regional Load Dispatch Centre
NPDSCL	Nagaland Power Development and Supply Corporation Ltd
NPTCL	Nagaland Power Transmission Corporation Limited
O&M	Operation and Maintenance
OSEB	Orissa State Electricity Board
PFC	Power Finance Corporation
PFT	Pension Fund Trust
PGCIL	Power Grid Corporation of India Ltd
PLCC	Power Line Carrier Communication
PLF	Plant Load Factor
PTC	Power Trading Corporation
REA	Rural Electricity Allocation
REB	Regional Electricity Board
RTU	Remote Terminal Unit
SBU	Strategic Business Units
SCADA	Supervisory Control and Data Acquisition
SDO	Sub Divisional Officer

SERC	State Electricity Regulatory Commission
SEs	Superintending Engineers
SPM	Single Point Metering
STU	State Transmission Utility
T & D	Transmission and Distribution
UDA	Upper Divisional Assistant
UEMB	Urban Electricity Management Board
UI	Unscheduled Interchange
VCs	Village Councils
VDBs	Village Development Boards
VEMBs	Village Electricity Management Boards

SUMMARY OF RECOMMENDATIONS

Perspective Power Plan

Mid-term power plan. It is recommended that DoP develop a power plan for a peak load of 171 MW and energy requirement of 794 MU by the end of the eleventh plan.

Capacity addition. Creation of new generating capacity does not make much sense under a situation where more than 50 percent of energy input is going to be lost in the systems. It is advisable that GoN accord first priority to completing distribution reforms rather than to capacity addition. In the long run, any plan for capacity addition should preferably focus on developing higher capacity hydro project.

In-house capacity building. Going by the experience of Likimro hydro project, DoP lacks adequate in-house expertise to operate and maintain power-generating stations. It is recommended that DoP hire experienced engineers and staff from neighbouring projects (who are on the verge of retirement, or just retired, or availed of VRS) on a consolidated pay package. This would enable on-the-job training of the DoP engineers and staff, as well as reduce the cost of hiring.

T & D capacity building. The present transmission capacity would not be adequate to handle transmission of more than 85-90 MW. It is recommended that DoP draw up a plan for augmenting T & D capacity under the APDRP scheme.

Power procurement. It is recommended that GoN avail of the entire entitlement of power supply from ISGS as purchase rate would be relatively cheaper, even cheaper than the cost of own generation. Besides, the state must consider the possibility of power procurement through bilateral agreement with power trading agencies.

Augmenting rural supply. GoN needs to develop a long-term strategy for developing stand-alone non-conventional sources of energy including solar projects to supplement grid supply in rural areas. The state must bear the capital cost of such projects so that power can be generated at a very low cost and support promotion of local industries.

It is also recommended that the ownership of stand-alone projects be transferred to the VEMBs and the responsibility for operation and maintenance of the projects be entrusted with them. The process of ownership transfer may begin with those micro/mini projects that have been lying non-operational for long simply because technical hands including engineers have not been appointed.

The VCs/VEMBs must get their people trained for O & M activities. Alternatively, they may entrust the O & M activities with any local entrepreneur that may come up seeing the new business opportunity.

Communitisation – Naga Way of Reforms

Expediting single-point metering programme. It is recommended that the villages for the SPM programme be selected in order of priority based on rank order by (a) number of consumers and (b) revenue potential. We have prepared such a list of 148 villages, with an estimated revenue potential of Rs.9 - 10 cr. per annum.

The villages with low load and lower potential for load growth can be provided with LT metering equipments, which the divisions themselves can install.

A task force may be created to develop action plans for expediting and overall control and monitoring of the SPM programme.

Safeguard against malfunctioning of VEMB/UEMB. We recommend that DoP retain the right to dissolve VEMB/UEMB for legitimate reasons, such as fraudulent practices and non-performance (e.g., increased losses, poor collection, non-payment of bills, etc.). Section 9 of the Rules 2002 need be suitably amended for this purpose.

Escrow account. For prompt and regular collection of revenue, each VEMB may be asked to open an escrow account in favour of DoP for a sum equivalent to 2-3 months' energy bills. DoP may work out the modality of operation of such account with suitable amendment/insertion in the Rules 2002.

Further decentralisation of rural supply. As a step toward decentralisation of the rural distribution management, VEMB may be entrusted with the responsibility of conducting O & M activities and bear the expenses. The board may evolve a suitable mechanism to recover the O & M expenses from their own consumers.

Capacity building. The success of the communitisation programme would ultimately depend on capacity building of VC/VEMB. The members of the Board and staff must undergo extensive training/workshop on rules, regulations, and guidelines in all kinds of technical and commercial matter. In this regard, DoP may seek technical assistance and funding support from multilateral agencies like DFID (UK) who has been supporting capacity building programmes in various sectors in the states like Andhra Pradesh, West Bengal, and Orissa.

Consumer metering. We recommend that DoP draw up an action plan for procurement and installation of consumer meters in the villages under the APDRP scheme. The work of consumer metering must be taken up along with the progress in systems metering.

Tariff revision. It appears that power tariff cannot be lower than Rs.2.50 per unit (Rs.2.33 per unit for power cost at supply level plus a token contribution of 17 paise per unit toward recovery of other overheads). Adding a margin of 15 paise per unit, which is to be retained by VEMB/UEMB as billing and collection charges, the retail price need be reset at Rs.2.65 per unit.

Road Map for Reform and Restructuring

Restructuring model. It is recommended that GoN follow functional unbundling and corporatisation without any further delay. Establishment of a STU (under the Electricity Act, 2003) and another corporate entity for generation/distribution/trading of electricity is found to be more suitable option and, hence, recommended. The STU may be named as "Nagaland Power Transmission Corporation Limited", while the generation and distribution company may be named as "Nagaland Power Development and Supply Corporation Limited". At a later stage, GoN may consider further spin off of divisions like Dimapur and Kohima into separate distribution companies.

Rural electrification. As a part of institutional reorganisation, it is recommended that GoN set up a Rural Electricity Board. Till the time such a Board is constituted, it is advisable that DoP creates a separate cell to look after the activities of rural electrification. Establishment of REB/Cell would enable the government to plan, coordinate and control all activities of rural supply of electricity in an effective manner.

State Electricity Regulatory Commission. It is recommended that GoN establish its own SERC, which may be called as Nagaland Electricity Regulatory Commission and

should be headed by a single Chairperson-cum-Member. The process of establishing NERC is discussed in details in Chapter 9.

Rationalisation of tariffs and state subsidy. We recommend that GoN/SERC follow a gradual increase in tariffs and come out with a multi-year tariff projection showing how tariffs would get stabilised once the transition phase is over and the state utility achieves a financial turnaround. We further recommend that GoN decide about subsidy policy as a part of the sector reform. In the mid-to-long term, GoN may consider creating a “power development and subsidisation fund” with contribution from government, utilities, and some categories of consumer with paying capacity. All subsidies and rural power development works may be funded out of this fund.

STU and Financial Restructuring Plan

Procedure for establishment of STU. The transmission utility has to be incorporated under the Companies Act, 1956 with a share capital as would be determined by GoN. It must be notified under Section 39 of the Electricity Act 2003 as the STU for Nagaland. The transmission assets and liabilities will have to be identified, segregated, valued and vested in the new company under a Transfer Scheme. And the number of personnel required for transmission/SLDC has to be determined rank wise and the select/identified personnel have to be transferred to the new company initially on deputation and they may be absorbed later once the service conditions, pension liability, etc. are settled.

Proposed structure of the STU. The Head Quarter (HQ) of the STU is proposed to be set up at Dimapur since SLDC is located there. Dimapur is also a suitable centre for dealing with power supply agencies. Apart from the existing SLDC and the two transmission divisions (at Dimapur and Mokokchung), it is recommended that a new transmission division be set up at Kohima.

An engineer in the rank of Chief Engineer may be appointed as the Managing Director (MD) of the STU. We also propose appointment of four General Managers (GM-Technical; GM-O & M; GM-Admn & HR; and GM-Commerce & Finance). The other posts to be created are: seven DGMs; eighteen AGMs and twenty five Managers. The number of other staffs (accountant, cashier, UDA, LDA, typist, peon, O & M field staff, jugalies, mazdoor, helper and chowkidar) must be kept at the bare minimum level.

Valuation of assets. It is proposed that transmission system be defined as the system consisting of high voltage electric lines having design voltage of 66 KV or higher along with grid sub-stations of various capacities, all associated and related apparatus and equipments, and the part or whole of the associated civil constructions. The book value of such assets is estimated to be about Rs.105 crores and it is recommended that the assets be vested in the STU at this value.

Transmission tariff. At the present level of intra-state transmission of electricity (301 MU during 2004-05), the transmission tariff is estimated to be 24 paise per unit, or Rs.172.80 per KW per month, and we recommend that the initial tariff be set at this level plus energy losses in kind as may be determined by the SLDC and approved by the State Electricity Regulatory Commission.

Financial restructuring plan and projection. The key assumptions underlying the FRP are as follows: (a) 10,500 equity shares of Rs.1000 each will be issued to GoN as a consideration and full adjustment for aggregate value of transfer of the assets, liabilities and proceedings to the STU; (b) liabilities on account of outstanding loans and accrued interest will be borne by GoN and not to be transferred to the new entity;

(c) GoN would provide upfront one-time cash grant of Rs.5 crores for creating a Pension Fund Trust; (d) GoN would further provide Rs.7 crores as upfront one-time working capital grant; (e) the generating/distribution company would provide a security deposit equivalent to one-month billed revenue through an escrow account; and (f) capital expenditure during the projection period will be financed through internal generation of funds.

The ten-year projections reveal the following: (a) internal generation of funds will provide for capital expenditure to the tune of Rs.90 crores spread over the projection period; (b) one-time GoN grant (Rs.5 crores) for Pension Fund Trust will be adequate to discharge the estimated pension liabilities; (c) the O & M stock will go up from Rs.0.47 crore to Rs.1.25 crores by the end of the projection period; (d) one-time GoN grant for working capital will be adequate for meeting working capital gap (i.e., net current assets); (e) year-end cash and bank balance will not fall below Rs.2 crores during the projection period; (f) there will be adequate budget provision for O & M expenditure; (g) profit after tax will steadily go up from Rs.1.14 crores to Rs.9.36 crores by the end of the projection period; (h) thirty percent of the profit will be distributed to GoN by way of dividend from 8th year onwards; (g) with dividend receipts, GoN would recover Rs.7.4 crores, or 62 percent, of the initial cash grant of Rs. 12 crores provided to the STU. Over a period of 10 years, the STU will become an Rs.160 crores company.

Transfer scheme. DoP may consider the draft Transfer Scheme and Order presented in this report (*Annex 7.4*). A significant aspect of the draft scheme is that it ensures protection of the existing employees (as per Sec. 133 of the Electricity Act, 2003) to be transferred to the STU against any adverse service conditions under the new set up.

NPDSCL and Financial Restructuring Plan

Organisation structure. It has already been recommended that GoN follow functional unbundling and establish a corporate entity (in addition to STU), which may be named as Nagaland Power Development and Supply Corporation Limited (NPDSCL), for generation, distribution and trading of electricity. Like STU, this new entity has to be incorporated under the Companies Act, 1956 as wholly owned government companies.

In December 2002, a Cadre Review Committee was constituted, which proposed restructuring of DoP with strengthening of staff. It is recommended that DoP adapt the organisation structure proposed by the Cadre Review Committee after giving due considerations to the fact that the transmission business and some odd 50-60 officers will be shifted to the STU.

It is further recommend that NPDSCL be internally structured into two separate strategic business units (SBUs) - one for generation of power (hydro/thermal) and another for distribution and trading of electricity. The CEO of generation SBU would be responsible for operation and maintenance of the existing plants, and for setting up new power plants. To begin with, performance of this SBU would be evaluated as a “cost centre” based on its “business plan and financial budget”. At a later stage, generation SBU may be treated as a profit centre with the assessment of revenue using suitable transfer pricing mechanism.

The CEO of distribution SBU would be responsible for supply of electricity in the two revenue circles (Dimapur and Mokokchung circles). Each circle will be a profit centre headed by a GM. Furthermore, each electrical (revenue) divisions will be treated as a sub-profit centre headed by a DGM.

For further strengthening of distribution management at micro-level, the structure of managerial accountability must be extended up to the feeder/transformer level. It is proposed that JEs (Managers) be made responsible for supply of electricity based on allotted feeders/transformers.

DoP may set up an internal Committee, including representatives from the Unions and Associations, for adapting the organisation structure proposed by the CRC in the light of the above recommendations.

Career stagnation: At present, the officers and staff are somewhat demoralised due to career stagnation and lack of immediate promotional avenues. In the long-run, capacity addition would create more promotion avenues for the engineers/officers. But, in the short term, DoP may consider providing opportunities for lateral promotion in various managerial posts (in areas like business planning & control; public relations; tariff & commercial matters; human resource management; training & development; finance; e-governance; etc.) that would be created with the establishment of the STU and power development and supply corporation. Of course, the engineers/officers will have to undergo training programmes for enhancing managerial competence.

For expanding the scope of work for the civil wing, repairs and maintenance of the civil constructions may be entrusted with them. This is not happening today since departmental budget has no provision for civil repairs and maintenance works. However, fund allocation will not be a problem once the new entities come up.

Problems of work-charge staff. There is an acute shortage of work-charge (W/C) staffs that do various odd works such as service connection, construction works (including 33 KV lines and sub-stations) and operation and maintenance of assets. Besides, these staffs hardly get monthly wages in time. We recommend that GoN consider fresh recruitment of work-charge staffs and ensure timely payment of monthly wages. Besides, W/C staffs need be re-designated as O&M staffs. There is now a legitimate move by DoP to absorb W/C staffs, who have been working for many years, as permanent employees. This needs be approved by GoN.

Lack of manpower for running hydro units: Hydro units like Telangsao (600 KW) could not be made operational due to lack of required manpower. To avoid revenue loss GoN is required to allow recruitment of manpower for commercial commissioning of such units. In the interim period, engineers who are temporarily off from the non operational Likimro project may be deputed for running the units.

Performance management. DoP may consider the Key Performance Indicators developed in this report for performance evaluation of each electrical division (profit centre). The KPI includes both financial and non-financial parameters under nine broad heads: (1) energy input, sales and AT&C loss; (2) rural and urban SPM sales and collection; (3) progress in metering; (4) power supply conditions; (5) consumer charter/services; (6) financial performance; (7) debtors position; (8) stock position; and (9) capital expenditure.

Valuation of assets and liabilities. The book value of the assets of DoP, as at the end of the financial year 2005-06, is estimated to be Rs.665.91 crores, out of which Rs. 105 crores worth transmission assets shall be transferred to STU. It is recommended that the balance assets amounting to Rs.560.91 be vested in the power development and distribution company (NPDSCL). Upward revaluation of assets is not recommended as it would result in higher end-user tariff due to increased depreciation.

Financial restructuring plan. The key assumptions underlying the FRP are as follows: (a) 5,609,100 equity shares of Rs.1000 each will be issued to GoN as a consideration and full adjustment for aggregate value of transfer of the assets, liabilities and proceedings to the NPDSCL; (b) bonds worth Rs.50 crores will be issued to GoN in tranche of Rs.10 crores per year for the first 5 years; (c) liabilities on account of outstanding loans and accrued interest will be borne by GoN and not to be transferred to the new entity; (d) GoN would provide upfront one-time revenue subsidy of Rs.87.41 crores to meet the transition period cash losses; (e) GoN would also provide upfront one-time cash grant of Rs.100 crores for creating a Pension Fund Trust; (f) GoN would further provide capital expenditure grant of Rs.101.25 crores spread over the first 5 years, which will part finance the total capital expenditure of Rs.210 crores during the projection period.

On the whole, GoN would be required to provide cash grant of about Rs.224 crores in the first year of the projection period, and another Rs.115 crores spread over the next 4 years. This is equivalent to six-year cumulative losses and with the financial turnaround of the NPDSCL takes, GoN will be able to save on current drainage of funds for loss making DoP.

Financial projections. The financial projections for NPDSCL are made for a period of *ten* years (2006-07 to 2015-16), taking into account the FRP and a set of assumptions as described in the chapter.

The financial projections reveal the following: (a) the operating profit (EBITDA) will become positive in the 5th year (2010-11), while profit after tax will turn positive in the 8th year (2013-14); (b) one-time GoN grant (Rs.100 crores) for Pension Fund Trust will be adequate to discharge the estimated pension liabilities; (c) the budget provision for O & M expenditure will steadily go up from Rs.2.46 crores in the first year to 5.82 crores in the tenth year; besides, the O & M stock will go up from Rs.0.62 crore to Rs.1.46 crores during the same period; (d) year-end cash and bank balance will not fall below Rs.8 crores during the projection period; (e) thirty percent of the profit will be distributed to GoN by way of dividend from 9th year onwards; and (f) over a period of 10 years, the NPDSCL will become an Rs.700 crores company.

Transfer scheme. DoP is required to prepare a transfer scheme similar to the draft Transfer Scheme and Order for the STU presented in this report.

Some important provisos to be incorporated in the Transfer Scheme for NPDSCL are as given under: (a) there shall not be retrenchment of the employees to be transferred on account being declared surplus in the new entity; (b) pension and other retirement benefits of the employees to be transferred shall be fully protected; (c) a Pension Fund Trust shall be created with one-time grant by GoN; (d) the period of service of the employees to be transferred shall be treated as continuous service; (e) equity shares shall be issued to GoN as a consideration and full adjustment for aggregate value of transfer of the assets, liabilities and proceedings to the new entity, NPDSCL; (f) GoN shall subscribe to bonds to be issued by NPDSCL as stipulated in the FRP and agreed upon and pay in cash; (g) GoN shall provide upfront one-time revenue subsidy grant, provided that this grant shall be used only to meet the transition period cash losses and not for any other purpose such as payment of salaries and wages; the entire amount shall be kept in an escrow account and shall be released to NPDSCL on fulfilment of the stipulated conditions, including the achievement of mandated reduction in AT&C losses during the transition period; (h) the consumer deposits amount lying in treasury shall be transferred to the account of the new entity; (i) the

state government shall commit to provide capital expenditure grants as stipulated in the FRP and agreed upon; and (j) all transfers (assets, liabilities, proceedings and personnel) and vesting specified in the transfer scheme shall be provisional and shall be final upon the expiry of 12 months from the effective date of implementation.

Regulatory Framework

Legal status of VEMB/UEMB. We have examined the status of VEMB/UEMB under the provisions of the Electricity Act, 2003 and hold the view that they can continue to supply electricity to retail consumers (based on single-point metering and billing system) in the specified area as authorised person (agent or franchise) of DoP (or its successor entities) under Section 14 of the Act. VEMB/UEMB would not be required to obtain any separate licence from the regulatory commission; DoP shall act as the deemed licence holder and shall be responsible for distribution of electricity by VEMB/UEMB in the specified areas within its own jurisdiction.

We also hold the view that VEMB/UEMB cannot fix tariff for the retail supply. Under Section 62 of the Electricity Act 2003, only the SERC has the power to determine retail tariff. Thus, the tariff rebate allowed to VEMB/UEMB by empowering them to set the retail tariff is not legally valid. The present arrangement may, however, be modified wherein tariff rebate can be redefined as billing and collection charges.

Un-metered rural supply. The consulting team was specifically asked, during presentation of the Inception Report to the government, to assess the feasibility of un-metered retail supply by VEMB in a village. In this regard, our view is that though the retail supply of electricity is carried out by VEMB, DoP remains exclusively responsible for the supply as licence holder. And as such it has a legal obligation, under Section 55 of the Electricity act 2003, to undertake supply of electricity only through installation of energy meters.

Section 55 of the Act further stipulates that no licensee shall supply electricity, after the expiry of two years from the appointed date, except through installation of a correct meter. This means installation of consumer meters may be deferred for a while but cannot be avoided legally. We recommend that DoP plan for installation of energy meters for rural supply of electricity.

Establishment of the NERC. It is recommended that the government of Nagaland establish a full fledged regulatory commission without any further delay. The Commission may be known as Nagaland Electricity Regulatory Commission (NERC, for short). NERC shall be a body corporate having perpetual succession and a common seal, with power to acquire, hold and dispose of property, both movable and immovable, and to enter into contract.

On the issue of joint commission. In our opinion, the political and administrative scenario in the northeast region varies across the neighbouring states. A joint regulator would find it extremely difficult to do equal justice to all the states and obtain same kind of commitment and support from different governments. Besides, consumers from different states would be required to travel unnecessarily to represent their cases whenever needed. It is, therefore, recommended that GoN establish its own regulatory Commission, which may be headed by a single-member. Since the NERC would be a single member commission, it is advisable to appoint a person with adequate knowledge of engineering, commerce and management. A High Court judge may not be an appropriate choice.

Notification of the NERC. This would involve the following steps: (a) the Cabinet has to take a formal decision for constituting the NERC (which may be known as Nagaland Electricity Regulatory Commission) as well as decision regarding its funding, location of the office, and skeleton staff to be put in place; (b) GoN has to nominate the Power Secretary as the Convenor of the Selection Committee to be constituted under Section 85 of the Electricity Act, 2003, for selecting Chairperson-cum-Member of the NERC; (c) The Power Secretary has to write to the Chief Justice of the High Court to nominate Chairperson of the Selection Committee; he has to write also to CEA or CERC to nominate a member of the Selection Committee; the Chief Secretary would be another member of the Selection Committee; (d) the Power Secretary is required to advertise or issue circular inviting names/candidature for the post of Chairperson-cum-Member of the NERC, indicating the qualification as prescribed U/s 84 of the Electricity Act, 2003; and (e) the Selection Committee would recommend a panel of two names and GoN has to select one out of them as Chairperson-cum-Member of the NERC.

Furthermore, GoN is required to issue notification in respect of the following: (a) Nagaland Electricity Regulatory Commission (Conditions of Service of Chairperson) Rules, 200_ (Annex 9.1); (b) Rules regarding Oath of Office and Secrecy of Chairperson of Nagaland Electricity Regulatory Commission (Annex 9.2); (c) Appointment of the Chairperson-cum-Member of the NERC (Annex 9.3); (d) Notification of the NERC with effect from the date the First Member joins (Annex 9.4); and (e) Notification of terms and conditions of service of the Secretary, Officers, and other employees (Annex 9.5).

Organisation structure. It is recommended that the NERC be set up initially with the minimum strength of manpower as follows: Chairperson-cum-Member – 1; Director (Tariff) – 1; Commission Secretary – 1; Deputy Director (Tariff) – 1; Deputy Secretary – 1; Assistant Secretary – 1; Private Secretary – 1; Personal Assistant-cum-Computer Operator – 5; Peon – 4. We further propose that the post of Chairperson-cum-Member in NERC be created at least in the rank of Additional Chief Secretary. The terms and conditions of service have been suggested separately (Annex 9.1). The Director (Tariff) and Commission Secretary may be in the rank equivalent to Superintendent Engineer, the Deputy Director (Tariff) and Deputy Secretary may be in the rank and pay of Executive Engineer, and the Assistant Secretary may be placed in the rank and pay of SDO.

Expanded structure: With the increase in the scope of regulatory activities, it would be necessary to expand the organisation structure of the SERC. A full-fledged structure of the SERC is also presented in this report. The expanded structure envisages the following additional posts: Adviser – 1 (on contractual terms); Directors (Engineering, Law and Administration) – 3; Deputy Directors – 9; Public Affairs Officer – 1; and other staffs such as Librarian and Security Officer.

Financial commitment for the NERC. At a bare minimum level, capital expenditure would be Rs.23.25 lacs (Table 9.2). Recurring expenditure is estimated to be Rs. 2.81 lacs per month. It is quite evident that establishment of the NERC is not going to cause heavy financial burden for the government of Nagaland. Besides, since a good number of officers/staffs would be on deputation from DoP and other departments the salary bills would be met out of the existing government budget.

Some More Issues and Recommendations

Communication strategy. Experience suggests that successful implementation of reform process requires, *inter alia*, broader understanding and acceptability of, and commitment to, reform agenda and process among the various stakeholders.

Communication with employees: It is recommended that DoP share the reform agenda and process with the employees at all levels. To begin with, this reform study must be made available to every one, including the office bearers of the unions and the associations. Also, seminars, workshops, discussion, etc. need be organised within the department as an ongoing process, with an objective to respond to the employee concerns about the job security and service conditions in the newly created entities.

We further recommend that DoP launch an in-house bulletin and thereby open a new channel of communication within the organisation. Besides, a core reform team needs be identified who would be responsible for providing transformational leadership and help gaining support for reform from employees at every level.

Communication with the consumers: High priority needs be accorded to building public consensus about power sector reforms. GoN/DoP must come out with bulletins, in English and local languages, highlighting the key issues in the power sector, especially explaining the theft of energy and the resultant commercial losses. Senior officials from the Power Ministry and DoP also need to communicate with the public about the sector problems and the government commitment to reform through public forum, radio, cable network, etc.

Creation of a communication cell & website: It is recommended that DoP create a corporate communication cell in the HQ. There is an urgent need to develop a DoP website for effective communication with the employees, consumers, and world at large. Website would also enable DoP to make data and information accessible to all.

Anti-theft campaign: We further recommend that DoP develop a broad-based anti-theft campaign and sustain over a reasonable period of time. In this regard, DoP may like to take clues from the utilities in other states.

Campaign for consumer education and help line: We strongly urge that DoP design and launch consumer education programme through print and other local media, especially to create awareness about energy savings and the don'ts in the use of electricity. In this regard, clues may be taken from utilities in other states. It would also be desirable to educate consumers about electronic meters. We also recommend that DoP display at prominent public place answers to frequently asked questions by the consumers. Alongside, DoP must provide helpline services to its consumers. Wide publicity should be given to the names and contact numbers for the helpline services.

Revenue management. It is recommended that DoP initiate measures for consumer indexation in all the revenue divisions. We understand from our preliminary interaction with some IT consulting firms that inexpensive software can be developed in place of manual system introduced in Mokochung town. We recommend that DoP engage a suitable local firm to develop such software.

Spot billing and collection: It is recommended that DoP introduce system of spot billing with hand-held computers. To begin with, the spot billing system may be introduced for Dimapur and Kohima divisions. This would involve procurement of around 60 numbers of hand-held computers at an estimated cost of Rs. 8 to 9 lacs. This is a meagre investment but would reduce the meter reading and billing cycle time drastically and

improve cash flow position of the department. DoP may also consider offering attractive rebate to those consumers who are willing to make spot payment through cheque. This would further improve the cash flow position. The bill format can be suitably designed to receive payment on the spot.

Collection of dues from local bodies, etc.: To tackle the problems of revenue collection from local bodies, government institutions, and government departments, GoN may be approached to recover the dues through appropriation of state budget allocation to them. Such a mechanism has already been adopted in states like Andhra Pradesh.

Accounting system. There is an urgent need to introduce commercial accounting system. In fact, this would be a prerequisite for preparing balance sheet and profit and loss account for each revenue division, which is going to be reorganised as a profit centre. It is recommended that DoP engage a professional consultancy firm for design and implementation of accrual based accounting system using available software. The professional consultancy firms should have experience of government accounting and budgeting.

1. INTRODUCTION

1.1 Background

1. In the state of Nagaland, the Department of Power (DoP) is responsible for generation, transmission and distribution of power. Like many other states, Nagaland is faced with energy and peak shortages, inadequate power systems, unreliable and poor supply of electricity, ineffective hierarchical organizational structure, growing revenue deficit, inadequate cash collection, and the resultant negative impact of all these on the state finances. The poor operational and financial performance has also been reflected in the rating of the state's progress in power sector reform, awarded jointly by Investment Information & Credit Rating Agency (ICRA) and Credit Rating Information Services of India Ltd. (CRISIL). At present, DoP ranks 22nd among the list of 29 states, with a score of 15.80 on a rating scale of 100 points.

2. Over the last couple of years, the government of Nagaland (GoN) has extended communitisation programme to the power sector (described later as "Naga way of reforms") and introduced single point metering system in several villages. This has improved billing and collection of revenue significantly from rural supply of electricity. The government now intends to embark on much more comprehensive sector reform. GoN has decided to take necessary steps to distance itself from the power industry and provide the power sector with operational, managerial and financial autonomy required operating the sector on the basis of commercial principles.

3. The power sector reform aims at achieving the following objectives:

- Efficient supply of electricity in terms of quality and cost to support economic development of the state
- Financial sustainability of the sector in mid-to-long term without state budgetary support
- Organisational restructuring for efficient and effective operation of power systems and delivery of services to consumers
- Strengthening rural distribution management under communitisation programme
- Resource mobilisation for capital investments, payment of outstanding liabilities, and financing of transition period losses.

4. In view of the above, GoN appointed M/s International Management Institute (IMI), New Delhi as a consultant to conduct a reform study. The study has been funded with a grant from Power Finance Corporation, New Delhi.

1.2 The Present Study

5. The present study has carried out the following broad tasks:

- Diagnostic evaluation of the existing power systems and the functioning of the Department of Power, Nagaland;
- Developing a perspective power plan;

- Evolving feasible restructuring options and recommending one;
- Reviewing institutional and regulatory framework and suggesting necessary changes;
- Recommending pricing and financial restructuring measures; and
- Recommending other measures including communication strategy.

Consulting Team

6. In carrying out the above tasks, the following consultants have undertaken field visits and interacted with the officials of the DoP:

1. Dr. Swapan Kanti Chaudhuri
Professor, IMI & Project Leader
2. Shri Dharendra Kumar Roy
Ex-Chairman, Orissa Regulatory Commission
3. Dr. Mirza S Saiyadain
Ex-Professor, IIM (A) & Visiting Professor, IMI
4. Dr. M V Krishna Rao
Director, Global Energy Consulting Engineers Pvt. Ltd., Hyderabad
5. Shri Subha Rao,
Consultant, Global Energy Consulting Engineers Pvt. Ltd., Hyderabad
6. Shri Gurdeep Singh, CA
Consultant, Ramanathan Iyer & Co.
7. Shri B P Mukherjee
Noida Power Company Ltd., Noida

7. In addition to above, the following local persons have been appointed by M/s International Management Institute for providing research support and local coordination of the reform study:

1. Temjen Y Jamir
2. Imkongakum Longkumer
3. Imkongmangyang Paul

Interim Submission of Reports

8. The draft Inception Report was submitted to DoP in September 2003. It was followed by several activities, namely: (a) a meeting with the Reforms Committee; (b) submission of two more revised versions of the Inception Report based on the feedback from DoP; (c) submission of a separate discussion paper on establishing SERC; (d) power point presentation to the Department; (e) power point presentation to the government (24 April 2004) ; (f) despatch of copies of the presentation (made to the govt.) to all the divisions for wider circulation among the employees who could not attend the presentation; and (g) preparation of draft cabinet notes, in consultation with DoP, for

establishing SERC and STU. Furthermore, before preparing the First Draft Report the consultant interacted adequately with the technical committee set up for designing STU.

9. The First Draft Report (revised) was submitted in March 2005, which contained in-depth analysis of most of the issues discussed in this report. Following the submission of this report, we had interactions with the Power Secretary, Chief Engineer, the DoP officials, and the senior officials from PFC. Based on their suggestions and guidelines, we have improvised and finalised our draft report. Very recently, we have also submitted an interim report regarding financial restructuring plan and projections for the proposed State Transmission Utility.

10. The present report is the final version of our diagnosis and recommendations and it contains, *inter alia*, road map for power sector reform and restructuring in the state of Nagaland, as well as the financial restructuring plan (FRP) and projections for the new corporate entities proposed to be set up, namely the state transmission utility (named as Nagaland Power Transmission Corporation Ltd.) and the power development and distribution company (named as Nagaland Power Development and Supply Corporation Ltd.). However, this report does not present project implementation plan, which may be drawn up once GoN takes key policy decisions, including setting up of SERC.

1.3 Organisation of the Study

11. Following this introductory chapter, the rest of the report is organised into nine more chapters as given below:

- | | |
|--------------------|--|
| <i>Chapter 2:</i> | This chapter presents an overview of the socio-economic status of the state, including the state's communitisation programmes and the fiscal position. |
| <i>Chapter 3:</i> | In this chapter, we carry out an in-depth review of the power sector in Nagaland and present our diagnostic findings. |
| <i>Chapter 4:</i> | This chapter presents a perspective power plan for the state, using a simulation model. |
| <i>Chapter 5:</i> | This chapter describes the implementation of the single point metering in the villages under the communitisation programme, and discusses the related legal and economic issues. |
| <i>Chapter 6:</i> | In this chapter, we present the road map for power sector reform and restructuring after reviewing various alternatives. |
| <i>Chapter 7:</i> | This chapter deals with the financial restructuring and projections for the proposed state transmission utility, and spells out the funding support required from GoN. |
| <i>Chapter 8:</i> | In continuation of the previous chapter, we present in this chapter the financial restructuring plan and projections for the proposed power development and distribution company |
| <i>Chapter 9:</i> | This chapter deals with the emerging regulatory framework and presents guidelines for establishing the SERC. |
| <i>Chapter 10:</i> | In this concluding chapter, we discuss some more issues having bearing with the power sector reform in Nagaland. |

2. THE STATE OF NAGALAND

2.1 Socio-Economic Background

12. Nagaland is a less developed state in northeast of India (bordering Assam, Arunachal Pradesh, Manipur and Myanmar) with an area about 16,579 sq. km (mostly hilly terrain) and population of nearly 2 million (2001 census)¹. The rural population is little over 82 percent and spread over large number of scattered villages with poor road access and communications.

Box 2.1: Village Councils (VCs) and Village Development Boards (VDBs)

The village councils were given statutory status in 1978 through the enactment of *The Nagaland Village and Area Councils Act 1978*. Each village council includes traditional leaders like the 'gaon burrahs' and other representatives from all the 'khels' of the village.¹ VC's tenure is five years after which it has to be re-nominated.

The village councils operate roughly 1,049 VDBs, which have been constituted with all permanent residents of the village as members. VC selects VDB management committee for a three-year period, including a secretary who is paid a monthly honorarium for assisting VDB and VC. The Deputy Commissioner/Addl. DC is the Chairman of VDBs within the district/sub-division.

While VC is a part of the traditional milieu of Naga society, VDB is an effort at dovetailing the village council into development framework. VC has a strong recognition rooted in tradition and is able to exercise influence on traditional spheres of land and family disputes, social and cultural sanctions, etc. However, it has not been so successful in steering VDB for control over development resources and activities. According to a reported field study, the demands of the underground, demands of corrupt coalition, and inclination of the local leadership combine in such a way as to leave only about 40 percent of resources for development programmes.¹ Thus, traditional micro institutions in Nagaland have demonstrated both strength and weakness over the years.

13. The state has a long history of participative democracy based on traditional Village Councils, well in advance of the decentralisation process in the rest of India (*Box 2.1*). These councils have under their control Village Development Boards, which execute development projects of the government of Nagaland and the government of India, and also run a number of commercial projects.

14. Christian missions over the last century had a major impact on Naga life with many tribal practices given up in favour of Christian practices. Apart from religion, this has impacted very strongly on another aspect of Naga life, namely, literacy and education. According to 2001 census, the state has a literacy rate of 67 percent as compared to the national average of 65 percent.

15. Nagaland has considerable unutilised mineral, petroleum and natural gas resources and is uniquely placed to provide a critical future industrial and trade linkages

¹ The decadal growth rate of population in Nagaland is 64.4 percent, which is 3 times the all-India average growth rate of 21.3 percent. In terms of 10-year CAGR, population in Nagaland has grown at 5.1 percent per annum over the decade from 1991 to 2001.

with the country's eastern neighbours and Southeast Asia. It also has a large potential for agro-forestry, horticulture and the development of its diverse biological resources.

16. The state has virtually no private sector and is besieged with a long history of sick state enterprises. The general perception, both within the government and the public at large, is not in favour of corporatisation/privatisation of the state's departmental activities.

17. The economic development of Nagaland has suffered immensely due to prolonged political turbulence. In recent years, the situation has improved a lot on account of ongoing political talks and negotiations. The GSDP at current prices has grown at a compound annual growth rate of 15.9 percent over the last couple of years, and the state is now poised for economic transformation. However, the availability of basic infrastructure including adequate and reliable power supply would be crucial for the development of the state.

2.2 Communitization

18. By tradition and culture, Nagaland has very rich social capital in the form of community spirit and community action as a way of life. The micro institution like Village Council is a part of that traditional milieu of Naga society. VC has a strong recognition rooted in tradition and is able to exercise influence on every aspect of village life, including traditional spheres of land and family disputes, social and cultural sanctions, and so on (*Box 2.1*).

19. However, for various reasons, community spirit and community participation in the all round development of the people and the society have declined over the years. Recognising this trend, the state government of Nagaland has taken initiatives to revive and utilise the age-old tradition and practice of community participation at the grass-root level in the entire process of development.

20. The government effort has eventually taken the shape of communitisation of public institutions and services in such sectors as education, health, and electricity. And to strengthen the process of communitisation, the government enacted the Nagaland Communitisation of Public Institutions and Services Act, 2002 (*Box 2.2*).

21. Communitisation of a government institution means transferring the ownership to and sharing responsibility of its management with the community. It thus includes decentralisation of authority, delegation of responsibility, empowerment of the community, and building up of a synergistic relationship between the government and the community for growth and development of the institutions and their service delivery².

22. The 73rd and 74th Constitutional Amendments do intend to transfer powers to the Panchayati Raj institutions to administer sectors such as primary education and health, but the process of empowerment of community in Nagaland is unique in the sense that no other state in the country has enacted communitisation Act, or amended government

² For instance, in a communitised school, the management functions would substantially vest in the community. Salary of a government teacher would be disbursed through the Village Education Committee, which will be empowered to control teachers in a variety of ways including the application of 'no work, no pay' principle. The community would get the government funding support for key purposes, such as purchase of text books, furniture, repair of school building, and so on. The community, in turn, would treat the school as their own, thereby contributing their best in cash and kind. Thus, communitisation ensures investment of community's social capital for betterment of the school and improvement. See GoN, Department of School Education: The First Year of Communitisation of Elementary Education, 2002-03.

rules and procedure to transfer salary of the government employees (under control of the community) to the community account in advance.

Box 2.2: Communitisation Act

The Nagaland Communitisation of Public Institutions and Services Act, 2002 was passed by the Nagaland Legislative Assembly (Act No. 2 of 2002) and notified by the Govt. of Nagaland, Department of Law and Justice vide No. LAW/ACT-63/2001 dated 15th April 2002.

The Act provides for empowerment of the community and delegation of powers and functions of the state government to the local authorities by way of participation of the community in matters connected with the management of local public utilities, public services and the activities of the state government connected with education, water supply, roads, forest, power, sanitation, health and other welfare and development schemes and also to provide for promotion of community based schemes incidental thereto (preamble of the Act).

Some important provisions of the Act are as follows:

- The state government may constitute or declare local authorities (Board or Committee or any other nomenclature) to exercise the powers and to discharge the functions under the Act (Sec. 3)
- Delegation of power and functions pertain to management and operation of any of the public utilities and public services or the activities of the state gov. connected with education, health, etc. as may be specified by the state gov. (Sec. 4)
- Whenever required, the gov. owned assets in relation to the public utilities and public services or the activities of the gov. may be transferred to the authorities (Sec. 4)
- Fund established for the local authority shall include the grants that may be released by the state gov. (Sec. 7)

Consequent to the enactment of the Act, sector-wise Rules were promulgated.

- State gov. may (by special or general order) place employees connected with the concerned public utilities and public services or the activities of the state gov. under the control of the local authorities (Sec. 6)

23. In 2002, the state initiated the process of communitisation for elementary schools and rural health sub-centres. Being encouraged by visible improvements, GoN has now extended the programme to the power sector. The experience of communitisation in the power sector is discussed in Chapter 5.

2.3 State Finances

24. Over the last couple of years (1999-00 to 2003-04), the revenue receipts have grown at a faster rate (CAGR of 20.2 percent) compared to revenue expenditure (CAGR of 12.3 percent) as a result of which the state had revenue surplus of Rs.547 crores in 2003-04 and Rs.202 crores (BE) in 2004-05 (*Table 2.1*).

25. However, this seemingly comfortable position in revenue account hides the most fundamental fiscal weakness of the state. GoN is almost entirely dependent on central transfers (share in central taxes and grant-in-aid) for financing its revenue expenditure. The state's own resource (tax and non-tax revenue) constitutes, on the average, around

7 percent of the total revenue receipts and it is quite inadequate to meet major expenditure heads. For instance, own resource cannot meet even annual interest burden; average interest-to-own revenue ratio works out to 197 percent (*Table 2.1*).

Table 2.1: Fiscal Indicators

(Rs. Crores)	1999-00	2000-01	2001-02	2002-03	2003-04	4-Yr CAGR	2004-05 (BE)
1. Revenue Receipts	1,131.5	1,254.1	1,324.5	1,346.9	2,359.8	20.2%	1,954.8
1.1 Tax Revenue	565.5	142.7	85.6	108.0	325.5	-12.9%	244.8
State's Own Tax Revenue	39.5	46.3	54.9	62.0	68.6	14.8%	84.5
Share in Central Taxes & Duties	526.0	96.5	30.7	46.0	257.0	-16.4%	160.3
1.2 Non-Tax Revenue	38.9	39.2	43.4	43.9	60.9	11.9%	63.7
1.3 Grants-in-aid from GOI	527.1	1,072.1	1,195.5	1,194.9	1,973.4	39.1%	1,646.3
2. Revenue expenditure	1,140.8	1,290.2	1,427.1	1,506.3	1,813.0	12.3%	1,753.3
2.1 Plan Revenue Expenditure	229.4	231.0	232.7	242.9	363.4	12.2%	234.2
2.2 Non-Plan Revenue Expenditure	911.4	1,059.2	1,194.5	1,263.4	1,449.6	12.3%	1,519.1
of which:							
Interest Payment	152.3	177.1	200.5	214.6	234.7	11.4%	270.7
Pension & Terminal Benefits ¹	53.3	87.6	112.3	133.4	153.4	30.2%	176.5
3. Revenue Deficit [2 - 1]	9.3	36.1	102.6	159.4	(546.8)		(201.5)
4. Capital Expenditure	179.3	224.4	238.7	340.7	391.1	21.5%	554.5
4.1 Plan Capital Expenditure	179.2	215.9	238.7	339.9	380.2		550.7
4.2 Non-Plan Capital Expenditure	0.1	8.6	0.1	0.8	11.0		3.9
5. Net Lending	-5.8	10.9	(4.4)	(5.1)	313.1		-7.7
6. Gross Fiscal Deficit [4 + 5 + 3]	182.9	271.4	337.0	495.0	157.4	-3.7%	345.4
7. Outstanding Debt (year end)	1,146.0	1,429.9	1,695.9	2,102.2	1,924.4	13.8%	3,609.0
Fiscal Indicators	Average						
a. State's Own Revenue/Total Revenue	7%	7%	7%	8%	5%	7%	7.6%
b. Interest/States Own Revenue	194%	207%	204%	203%	181%	197%	182.7%
c. Pension/State's Own Revenue	68%	102%	114%	126%	119%	109%	119.1%
d. Revenue Deficit/GSDP	0%	1%	2%	3%	-9%	-1.1%	-2.9%
e. Gross Fiscal Deficit/GSDP	6%	6%	7%	10%	3%	6%	5.0%
f. Outstanding debt/GSDP	35%	34%	37%	43%	33%	28%	52.4%
<i>Memo Item</i>							
GSDP ²	3,230	4,235	4,541	4,910	5,824	15.9%	6,892

Source: CAG report for data up to 2003-04; RBI report on State Finances for figures for 2004-05.

¹ Source: RBI Report on State Finances

² Source: Twelfth Finance Commission

26. On the expenditure side, the pension burden has grown at a CAGR of 30 percent and currently soaks about 109 percent of the state's own resources³. This is an area of great concern and the state needs to focus on pension reforms. The central government has already initiated a move to switch over from the present guaranteed non-contributory pension scheme to contributory scheme (*Box 2.3*). The move is being contemplated to tide over the unsustainable fiscal burden on account of pension liability.

27. Though the annual capital expenditure has grown over the years to Rs.554.5 crores in 2004-05 (BE), it remains far below the level of investments required for the economic development in the state. But, unlike several other states, almost the entire

³ Like other northeastern states, the government employment is the major source of income for the people in Nagaland and pension is the only means of social security to them.

part of the state's borrowing, including loans from GoI, goes toward financing the capital expenditure - the borrowed funds are seldom utilised for meeting revenue expenditure. This is a welcoming fiscal trend and this has been possible due to the fact that central transfers take care of the revenue expenditure.

Box 2.3: New Pension Policy of the Central Government

The new pension policy proposed by the central government is a contributory scheme. Under the scheme, employees will be required to contribute a part (7.5 to 10 percent) of their basic pay towards pension, and the government will make a matching contribution. While the contribution percentage would be predefined, the government would not guarantee any fixed pension amount payable to an employee at the time of retirement.

Professionals would manage pension fund, and the pension amount to be received by an employee would depend on the performance of the fund. At present, the employees are entitled to a defined pension benefit (50 percent of the last pay drawn). Such benefit would not be available under the new scheme.

The new plan is being mooted to tide over the unsustainable fiscal burden on account of pension liability. It would be initially implemented for the new entrants in the government service, excepting the defence personnel. It is expected that state governments would eventually adopt contributory pension scheme to ease out their pension burden.

28. In terms of overall borrowing, the state's indebtedness has grown significantly; outstanding debt now accounts over 52 percent of GSDP. Annual fiscal deficit has been around 6 percent of GSDP (except for 2003-04). This is not an alarming level of deficit, but it is not a comfortable fiscal position too. Both the centre and the state must now realise that further capital investment in the economy would be possible only through augmentation of state revenue and grants and not with debt financing.

29. In sum, the state government is urgently required to draw up its agenda for fiscal reforms, which must *inter alia* include restructuring some of its loss making departments such as the Department of Power (DoP). The state can no longer bear the growing fiscal drain on account of loss making departments.

3. REVIEW OF THE STATE POWER SECTOR

3.1 Demand for Power

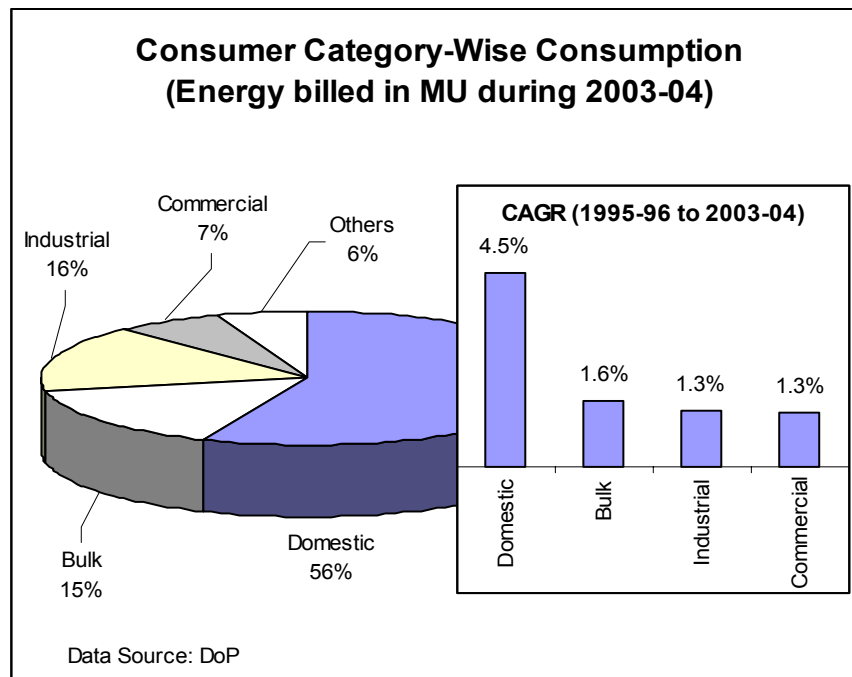
30. Starting with a few kilowatts of power requirement during the 1960s, when Nagaland first purchased power from ASEB, the demand has grown significantly with number of consumers reaching a level of over 1.63 lacs (2004-05). However, per capita consumption of power at around 128 units is very low compared to all-India average of 355 units. In addition to shortage of energy, the consumers are faced with poor quality and unreliable supply of power.

31. In this chapter, we present our diagnostic evaluation of the power sector in Nagaland. Some important aspects like communitisation programme and institutional issues and concerns have been deliberated in separate chapters.

Energy Consumption

32. The domestic consumers accounted for a major share of 56 percent in the total energy billed during 2003-04 (*Figure 3.1 & Annex 3.1*). Industry and bulk consumption had almost equal shares at 16 percent and 15 percent respectively.

Figure 3.1: Energy Consumption Pattern and Growth

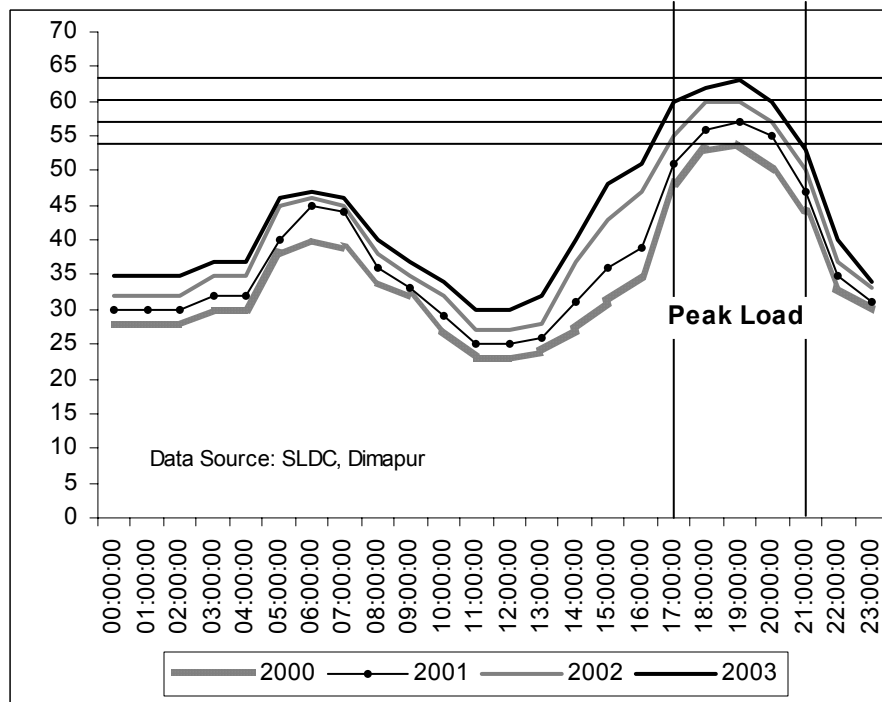


33. It may further be noted that compound annual growth rate (CAGR) of energy consumption has remained quite low over the period from 1995-96 to 2003-04 (*Figure 3.1*). While consumption of energy for the domestic sector has grown at CAGR of 4.5 percent, the energy consumption for industrial and commercial consumers remained virtually stagnant, recording meagre growth rates of little over one percent. Bulk consumption of electricity grew at 1.6 percent during the same period.

Load Pattern

34. Analysis of average hourly load in MW over the last couple of years clearly brings out that load pattern has remained fairly stable *albeit* load curve has slowly shifted upward (*Figure 3.2 & Annex 3.2*). Peak load (between 17:00:00 and 21:00:00 hours) increased from 54 MW in 2000 to 63 MW in 2003 and further to 65 MW during 2003-04.

Figure 3.2: Average Hourly Load in MW



35. The current peak demand of 65 MW is the restricted demand. DoP claims that the suppressed demand in Dimapur and adjoining area alone would be about 15 MW⁴. Trend data on load further reveals that over the last four years ending 2004, peak load has grown at a CAGR of 7.75 percent (*Figure 3.3 & Annex 3.2*). This is marginally higher than the growth rate of 6.96 percent assumed under CEA projection for the period from 2001-02 to 2006-07. Furthermore, average hourly load shows monthly variation - demand goes up during August to February/March for all time zones (*Figure 3.3*). But overall variation, on the average, takes place within a narrow range of 4-6 MW⁵.

36. Energy requirement for the year 2003-04 was 278.48 MU. This includes power purchase of 263.52 MU and free power of 14.96 MU. Taking together the energy requirement in MU and peak load in MW, annual load factor works out to 49 percent⁶.

⁴ Though we are not clear how DoP has estimated this suppressed demand, the figure looks realistic keeping in view the projection made by CEA in its 16th power survey. According to CEA projection, peak demand in 2003-04 should have been 80 MW, which means given the recorded peak load of 65 MW, suppressed demand should be (80 MW-65MW =) 15 MW.

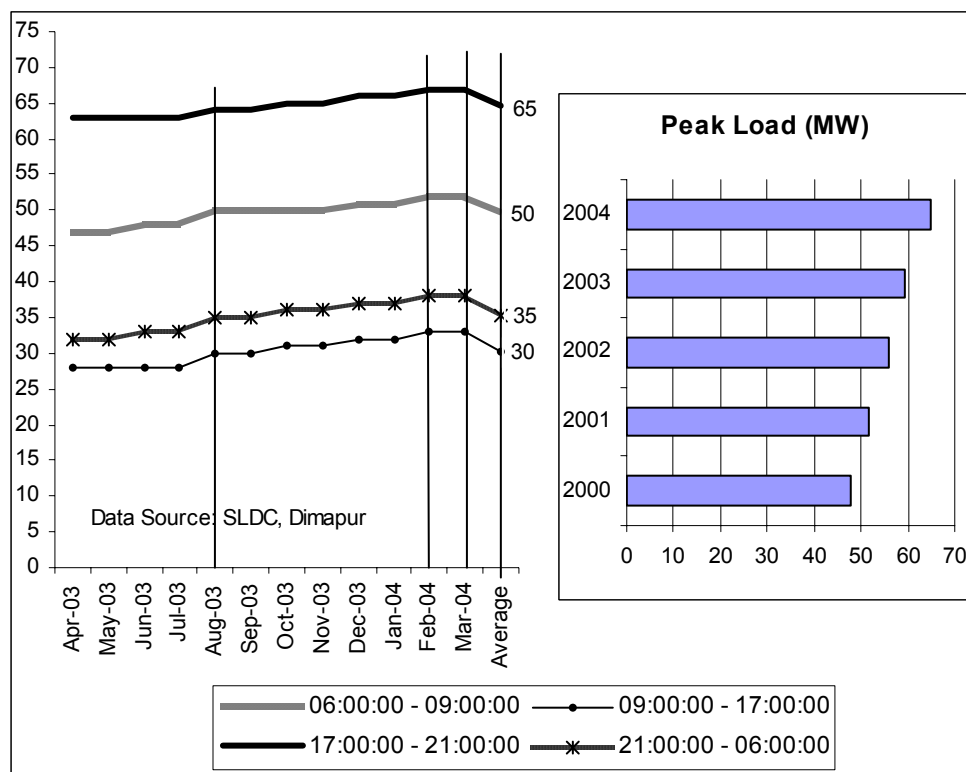
⁵ While power demand in Dimapur goes up by about 5 MW during summer, Kohima experiences increased demand by about 12 MW only during winter.

⁶ Annual Load Factor = $\frac{\text{Energy Requirement (MU)} \times 10^5}{\text{Peak Load (MW)} \times 8760 \text{ Hrs}}$

See Sixteenth Electric Power Survey of India, CEA, September, 2000.

This is significantly higher than the CEA projected annual load factor of 44.5 percent and 45.0 percent for the years 2003-04 and for 2004-05 respectively.

Figure 3.3: Monthly Load in 2003-04 & Growth in Peak Load



Demand Forecast by CEA

37. In its 16th power survey, CEA has projected increase in energy requirement from 312 MU in 2003-04 to 554 MU by the end of 11th Plan (2011-12), and peak demand from 80 MW to 141 MW (*Table 3.1*). The projection assumes different growth rates for different plan periods, but on the whole, energy requirement is assumed to grow at a CAGR of 7.4 percent and peak load at 7.3 percent.

Table 3.1: Energy Requirement and Peak Load Forecast by CEA

	2003-04	2004-05	2005-06	2006-07 ¹	2011-12 ²	2016-17 ³
Energy Requirement	312	335	360	387	554	790
<u>Growth rates:</u>						
2001-02 to 2006-07	7.52%					
2006-07 to 2011-12	7.42%					
2011-12 to 2016-17	7.32%					
Peak Load	80	86	92	98	141	200
<u>Growth rates:</u>						
2001-02 to 2006-07	6.96%					
2006-07 to 2011-12	7.55%					
2011-12 to 2016-17	7.24%					

¹ End of 10th Plan ² End of 11th Plan ³ End of 12th Plan

38. In this report, an attempt has been made to project power requirement of the state in the mid-to-long term period. This is discussed in the next chapter.

3.2 Installed Capacity

39. At present, Nagaland has hardly any generating capacity of its own. With the commissioning of Likimro hydro project, which has now run into several problems including technical breakdown, the state would have installed capacity of 36 MW (*Table 3.2*) during peak season and about 12 MW during lean season. This includes states share of 12 percent (9 MW during peak season and 3 MW during lean season) in 75 MW Doyang hydro-project set up by NEEPCO.

Table 3.2: Installed Generating Capacity

Hydro	Peak Season	Lean Season
Share in 75 MW Doyang (NEEPCO)	9.00*	3.00 [@]
Likimro	24.00	8.00
Duilumroli I & II	0.74	0.37
Tsutha	0.70	0.35
TelangSao	0.60	0.20
Dzuza I	1.00	0.50
Total	36.04	12.42
Source: DoP	* 75 MW x 12% share = 9 MW	@ 25MW x 12% = 3 MW

40. The state would also have an added capacity of 23.2 MW by way of its share once the 3x135 MW Ranganadi hydro project of NEEPCO is commissioned. The project has already suffered cost overrun and there remains transmission bottleneck. It is, therefore, uncertain when power will be available from this hydro plant and at what cost.

Likimro Hydro Project

41. The 24 MW (3 units of 8 MW each) Likimro hydro-project started way back in the nineties. The original estimated cost of the project was Rs.46.48 crores (Rs.15.91 crores for civil works, Rs.17.93 crores for electrical works, and Rs.12.64 crores for transmission system). The detailed project report (DPR) envisaged that the project would be implemented over the period from 1989-90 to 1993-94. But the project got delayed due to paucity of funds and additional investment became necessary for constructing a new approach road, as the Kiphire-Pungro road was not made available as originally planned in DPR.

42. The project works in all practical terms started from 1996, when the Power Finance Corporation (PFC) advanced a loan of Rs.15.61 crores for the project. The progress of work accelerated from 1999-00 onwards. The project was finally completed at a cost of Rs.215.88 crores (including transmission/sub-station cost of Rs.34.11 crores) and commissioned in February 2002⁷. Thereafter the project suffered major technical breakdown within a short span of time. To repair the plant including outstanding liabilities for the works already executed, the state now requires an additional investment of Rs.21.25 crores.

43. Once operational, Likimro hydro project would generate, assuming 70 percent PLF, about 72 MU of electricity per annum. However, our rough estimate suggests that cost of generation would be Rs.3.38 per unit over the next 30 years as compared to the current power purchase cost (including free power) of Rs.2.12 per unit (*Table 3.3*). This means Likimro power generation is going to be more expensive.

⁷ Source: Likimro Hydro Electric Project – A Profile, Department of Power, GoN.

Table 3.3: Generation Cost of Likimro Hydro Project

Cost of the project excluding transmission system cost:	Rs.182 crores
Additional investment for repairs including civil works	Rs.21 crores
Total cost	Rs.203 crores
Cost per MW	Rs.8.5 crores
Capital recovery charges (interest & depreciation) @ 12% (203 x .12 x 10)/72 =)	Rs.3.38 per unit
Current power purchase cost excluding free power	Rs.1.96 per unit
Excess cost of generation over power purchase at going rates	Rs.1.42 per unit

44. Apart from uneconomical cost of generation, there are other issues facing the power department. At present, the engineers and staff posted at the Likimro plant are stationed at the CE office at Kohima. It appears that the plant site does not have basic infrastructure and facilities to enable the engineers and staff to live there. If the engineers and staff are not going to be stationed at the plant site, it is not clear who else would operate the plant. This is an issue that DoP has not yet addressed.

45. Capacity building for operation and maintenance of hydro plant like Likimro is another issue that deserves attention. The Likimro engineers need to undergo technical training on operation and maintenance of the plant. The current line of thinking is to put them on O & M training under guidance of the contractor who might be engaged to fix the plant and run it in the initial period.

Micro/Mini Hydro Projects

46. In general, northeast states including Nagaland has huge potential for hydro projects. But, hydro projects pose a typical problem. Due to land-holding system, wherein the state government does not own any land, acquisition of project sites is a complicated long-drawn process and involves payment of huge compensation. As a result, the project gets delayed and the cost of generation goes up.

47. In view of this, the state government has been encouraging initiatives from the Village Councils for development of micro/mini hydro projects (*Box 3.1*). Setting up of micro/mini hydro projects would improve the availability of power in geographically dispersed rural areas and also encourage the development of local resource (such as bamboo) based industries.

Box 3.1: Promotion of PICO Hydro-Renewable Energy Sources

<p>Workshop cum Demonstration on Hydrogers (PICO Hydro-Renewable Energy Sources) Near Phesama village at Dzucharu river, Kohima (NH-39) From 15th August to 25th August 2004</p> <p>Sponsored by</p> <ol style="list-style-type: none"> 1. NEPED (ICEF) 2. Ministry of Non-Conventional Energy Sources (MNES) 3. NREDA 4. Rural Development 5. Power Development <p>(Source: Ad released in Eastern Mirror, Nagaland, dated 12.08.2004)</p>

48. It is understood that GoN is now considering promoting small enterprises to manufacture modern bamboo products using the types of technology adopted in China. Availability of low-cost power from local micro/mini hydro projects would be critical in making such enterprises commercially viable.

49. DoP has pointed out that hydro unit like Telangsao (600 KW) is at the moment non-operational due to lack of required manpower. Although provision of manpower is being made in the feasibility report, GoN has not yet approved recruitment of manpower. This is a matter of great concern as non-operational unit means loss of revenue. DoP needs to explore the possibility of relocating manpower for running those non-operational projects until alternative arrangements are being made.

Proposals for Capacity Addition

50. DoP has proposed to set up a thermal plant (based on diesel engine) of 4x5.73 MW at Dimapur to meet power shortage during dry season. This thermal station can be run on cheaper liquid fuel (LSHS/HPS/RFO) and Indian Oil Corporation (IOC) has given its assurance for un-interrupted supply of fuel oil at competitive rates. The cost of power generation is estimated to be Rs.2.91 per unit⁸. The project is still under consideration of the Planning Commission. The rationale for building the proposed thermal station as articulated by DoP runs as follows.

51. Heavy or exclusive reliance of the state on hydro source of power has its own problems. The availability of power from hydro source takes a drastic beating in the lean season, with generation capacity reducing to the extent of about one-third of the installed capacity. Besides, hydro projects are location specific and normally away from the load centres. This, in turn, necessitates developing long-distance network through hilly terrain and causes several other problems including maintenance problems and loss of energy.

52. Notwithstanding the above line of argument, the economy of thermal power from liquid fuel based station is questionable since fuel price is susceptible to regular hikes in international oil prices. The cost of generation of power from the proposed project is, therefore, bound to be much higher than what is being initially contemplated. DoP may, therefore, like to recheck the cost of fuel with IOC.

53. While we may still argue that the issue of higher power generation cost has to give way to need for power availability during dry season, the evolving power scenario in the country now necessitates fresh thinking and evaluation about establishing expensive power plant. Introduction of open-access in inter-state transmission, power trading, and availability based power tariffs – all these new measures have improved the grid discipline and thereby improved the prospect of power availability in the existing systems in the country, including the northeast region. It is imperative, therefore, that DoP undertake fresh cost benefit analysis of the proposed thermal plant in the background of the evolving power scenario.

54. Apart from the proposed thermal power station at Dimapur, there are several other major and small hydro projects under various stages of study (investigation, pre-feasibility and detailed project report). A major project under consideration is the 3 x 40 MW Dikhu multipurpose-project. The detailed project report is with CEA for clearance

⁸ The figures reported in the background note submitted to the Planning Commission (along with the letter dated 15 Nov. 2002) show that variable cost (i.e., fuel cost) of generation would be Rs. 3.21 per kwh. It is not clear how DoP is contemplating a lower rate of Rs. 2.91.

and it is also under active consideration of Nagaland Pollution Control Board (Dimapur) for environmental clearance.

3.3 Power Purchase

55. Till to date, the state of Nagaland is primarily dependent on the central agencies for purchase of power. The entitlement of the state is over 7 percent in the central sector generating stations in the north eastern region (NER)⁹. With effect from 1st November 2003, the state has been purchasing power under the new tariff system, namely Availability-Based Power Tariff (Box 3.2).

Box 3.2: Availability Based Tariff

ABT has two-part billing system: (a) *capacity charge* (fixed charge) and (b) *energy charge* (variable charge). The capacity charges vary from one generating station to another and are fixed by CERC from time to time. As long as a constituent state has a contract with the agency of a particular generating station, the constituent state is required to pay the fixed capacity charge to that generating station as per the generating station's *declared capacity*, irrespective of how much the constituent actually draws energy from them. For northeast states, capacity charges are more during monsoon when hydro power-availability remains high.

Every generating station declares its availability of power over the next 24 hours to the regional load dispatch centre. In case of the northeast region, availability of power has to be declared to the North Eastern Regional Load Dispatch Centre (NERLDC) at Shillong by 10:00 hours. Based on declared capacity, NERLDC then allocates available power to the various constituent states strictly as per the share of the respective states in the generating capacity. NERLDC communicates entitlement to the constituent states by 11:00 hours. The states are required to submit requisition to NERLDC by 15:00 hours. Requisition by the states and subsequent final schedule for drawing power becomes the basis for energy charge billing.

If a constituent state draws more power than what is being fixed in the allocation schedule, then it has to pay UI charges if the real time frequency is less than 50.5 hz; no UI charges are levied when power is drawn at frequency above 50.5 hz (*Annex 3.4*). Similarly, if that state draws less energy than the allocated share, then it will receive UI charges, once again based on the real time frequency during under-drawing period.

Under drawn power can be traded either bilaterally or as UI. This would be profitable as long as bilateral trading rate or UI rate is more than payable scheduled energy charge (i.e., variable charge).

It may further be noted that UI payment has to be made within 10 days from the date of issue of the bill from NERLDC at Shillong. Failure to pay the billed amount in time results in paying surcharges.

Power Purchase Rate

56. Prior to the introduction of ABT system, the average power purchase cost had grown at a compound rate of 2.9 percent, from 145.16 paise per unit during 2000-01 to 158.20 paise per unit during April-October 2003 (*Annex 3.3, Figure 3.4*). Given the rate of inflation of 4.2 percent over the same period, power purchase cost, in real term, had

⁹ For instance, the total injection of energy by central sector generators of NER to the grid during October 2004, as per REA dated 13.04.2004, was 304.394 MU, in which weighted average entitlement of Nagaland had been 7.367 percent.

come down more than one percent¹⁰. However, introduction of ABT caused increase in interstate generating station (ISGS) rate by about 34 percent, from 139.11 paise/kwh during April to October 2003 to 185.66 paise/kwh during December 2003 to March 2004 (Figure 3.5).

Figure 3.4: Agency-Wise Power Purchase Cost

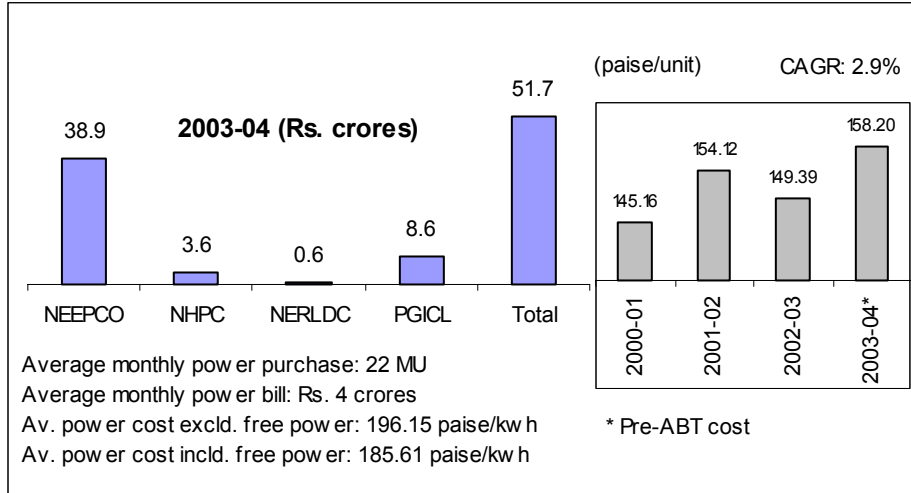
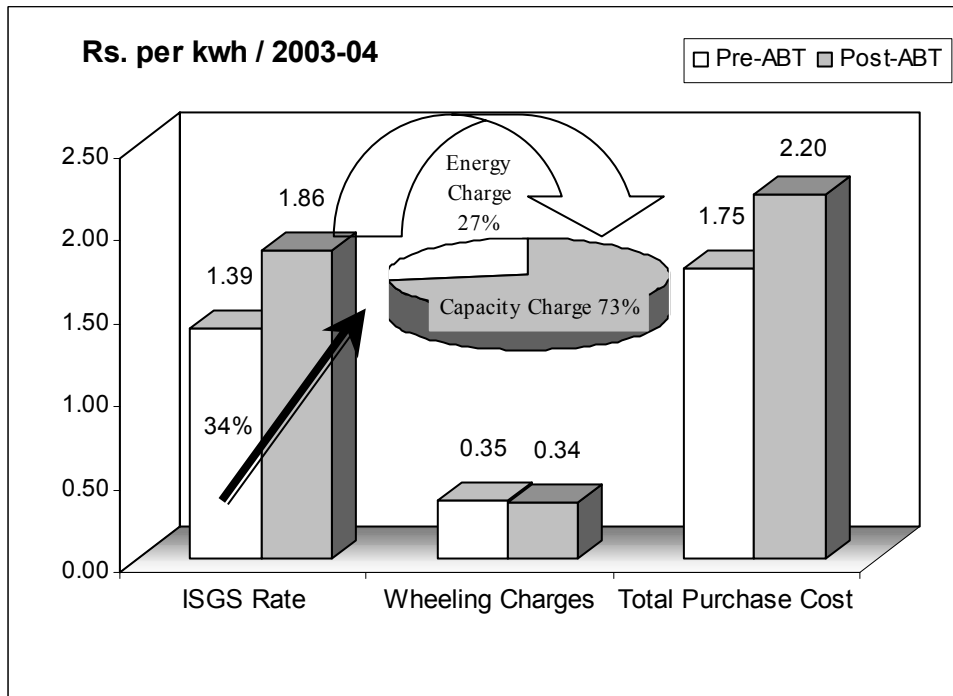


Figure 3.5: Pre-ABT and Post-ABT Power Purchase Cost



57. The post-ABT hike has been mainly on account of the fixed capacity charges (which the state is now required to pay irrespective of the amount of actual drawing of power) as well as due to net UI charges.

¹⁰ Source for rate of inflation: Economic Survey, 2003-04, Govt. of India.

58. During 2004-05, the power purchase cost (excluding payment of Rs.6.02 crores for past dues) was Rs.63.69 crores. The energy input (excluding sale outside the state) was 300.841 MU as per the statement of Power Grid Corporation of India Ltd. (PGCIL), NER, and Dimapur. Taking together, the average power purchase cost is estimated to be Rs.2.12 per unit. Almost the same average rate (Rs.2.13 per unit) prevailed during the previous year 2003-04.

State Load Despatch Centre (SLDC)

59. Clearly, DoP needs to monitor and control over-drawing of power at low frequency. And for real-time load management, it is important to have effective communication network, especially among the power import/export points. Keeping this in view, GoN commissioned remote terminal unit (RTU) network in January 2004, which enables real-time load management. The RTU network is now fully operational with the backup facilities of well-equipped SCADA system computers and recently trained operators. With RTU set up, the 132 KV sub-station at Dimapur is now recognized as the state load dispatch centre.

60. However, we may note the following constraints faced by the SLDC at Dimapur:

- At present, Nagaland has import/export points at Dimapur, Kohima, Aolichen and Naginimora. But, the RTU network covers only Dimapur and Kohima points. The other two points are still not provided with *power line carrier communication* (PLCC) connectivity; this facility is yet to be installed.
- Though Kohima is provided with PLCC connection, it cannot transmit accurate Karong load-data to RTU computer at SLDC because 132 KV Karong line PT is not included in the network.
- For round-the-clock monitoring of the RTU console, SLDC needs more qualified staff with adequate knowledge about the operation of RTU and SCADA systems.

61. On account of the above constraints, SLDC cannot assess accurately unscheduled interchanges and, hence, unable to exercise adequate control over load flow on real-time basis. The situation has further worsened due to inaccurate metering equipments at several sub-stations. DoP needs to take immediate actions to remove all the bottlenecks in the system for real-time load management under ABT.

3.4 Power Systems

Transmission and Distribution Systems

62. Nagaland has a fairly good intra-state transmission network comprising 18 nos. of 132 KV & 66 KV sub-stations having total transformation capacity of over 200 MVA (*Table 3.4*). Two 66 KV substations – one at Tizit and another at Zunheboto – are under construction. Once these substations along with Naginimora-Tizit and Mokokchung-Zunheboto 66 KV lines are commissioned, the power supply situation in Zunheboto and Mon divisions would improve. The sub-stations are connected through 132 KV and 66 KV transmission lines of total length of 626.39 km.

63. The 33/11 KV sub-stations are the backbone of power distribution system and failure in any sub-station results in outages/load shedding in large areas. At present, the entire supply to the state is fed through 56 nos. of sub-stations and 68 transformers having total capacity of 108.5 MVA (*Table 3.4*).

64. The transmission and sub-transmission lines run through thick jungles. A major part of power interruption occurs due to jungle interference on the lines. Usually, it takes longer time (sometimes 5-6 days) to locate the fault and restoration of power supply on account of several factors such as shortage of trained and qualified staff to work on the tower line and lack of equipments/communication facilities.

Table 3.4: Existing Power Systems

Sub-Stations		
<i>Voltage Level</i>	<i>Nos.</i>	<i>Transformation Capacity (MVA)</i>
132 KV & 66 KV	18	Over 200
33/11 KV	56	108.75
Feeders		
<i>Voltage Level</i>	<i>Nos.</i>	<i>Length (Km)</i>
33 KV	47	1,216
11 KV	164	4,965
LT Lines		7,252
Distribution Transformers		
<i>Voltage Level</i>	<i>Nos.</i>	<i>Transformation Capacity (MVA)</i>
11/0.4 KV	1396	124.49
33/0.4 KV	72	5.86
Source: APDRP Project Report, Power Grid Corp.		

65. The distribution network consists of 1,396 nos. of 11/0.4 KV and 72 nos. of 33/0.4 KV transformers having total capacity of 124.49 MVA and 5.86 MVA respectively. There has been no further augmentation of the capacity for the last many years, even though the load has increased many folds.

66. Some of the distribution transformers (100 KVA to 500 KVA) are being overloaded to the extent of 50 percent of the load capacity. For instance, Kohima electrical division as a whole now requires up-gradation of capacity by 2 MVA and four additional sub-stations. Similarly, Dimapur has a long list of overloaded transformers. As a result of overloaded transformers, there have been frequent failures of transformers and consumers live without power for weeks and months, even longer period. The transformer failures also occur due to non-availability of maintenance items in time¹¹.

APDRP Support

67. DoP has been supplying power in the state for long without adequate systems and consumer metering and, hence, without energy accounting and audit. Due to funds constraint, DoP has not been able to undertake metering and up-gradation of transmission and distribution systems.

68. However, following the launch of Accelerated Power Development Reforms Programme (APDRP) by Ministry of Power (MOP), Govt. of India (GoI) the power department has so far availed of funding support to the tune of Rs.25.56 crores (by the end of 2004-05) for systems strengthening and augmentation¹².

¹¹ See First Draft Report for details about overloaded transformers in Kohima division.

¹² Year-wise release of funds under APDRP has been as given under:

2001-02	2002-03	2003-04	2004-05	Total (Rs. Cr)

69. In consultation with DoP, PGCIL prepared a detailed project report for systems strengthening and augmentation at an estimated cost of Rs.38.39 crores, which was duly approved by MOP in October 2002. The project envisages the scope of works as given under¹³:

- 100 percent system/consumer metering
- Re-conductoring and addition of 33 KV and 11 KV feeders
- R & M of sub-stations/distribution transformers to minimise failure rate and increase reliability of power supply
- Installation of LT capacitors
- Construction of new 33/11 KV sub-stations and distribution transformers along with new lines

The completion of the above work would strengthen the power systems of the state¹⁴.

70. At present, only Dimapur and Kohima divisions have computerised billing system. DoP has now proposed computerisation of billing system in 6 more divisions under APDRP Phase-II programme and it has already been approved by MOP, GOI. Needless to say that the proposed computerisation would improve billing efficiency of the divisions under consideration.

Progress in Metering

71. As of now, only 2 out of 210 nos. of distribution transformers (DTs) in urban arrears have been metered. Similarly, DT metering has been completed in 236 villages out of 1273 villages electrified as per 1991 census (*Table 3.5*). All these metering are done under single point metering programme (discussed later).

Table 3.5: Status of DT Metering (2004-05)

	Nos. of Distribution Transformers	Metered	
		Nos.	%
Urban Areas	210	2	1.0
Rural/Villages	1273*	236	18.5

* As per 2001 census, 44 villages are yet to be electrified.

72. Not much progress has been made in 11 KV metering - only 40 percent of the total 11 KV feeders in the state have electronic meters (*Table 3.6*). In the two major divisions, namely Dimapur (Electrical) and Kohima, feeders metering has not yet completed.

73. The position with respect to consumers (other than agriculture) metering is also not satisfactory - out of 1.6 lacs of consumers, 1.2 lacs or 74 percent have meters. Besides, a good number of the installed meters are non-functional. Our earlier analysis further suggests that not enough provision has been made for procurement of consumer meters in the APDRP scheme of Rs.36.58 crores (*see the Inception Report, p 36*).

1.88	8.21	10.47	5.00	25.56
Source: DoP (Accounts Section)				

¹³ MOP, Govt. of India has appointed PGCIL as the consultant for the east and northeast regions.

¹⁴ For procurement and works under APDRP scheme, DoP has developed, in consultation with PGCIL, detailed tender specifications for turnkey contracts. Refer to the Inception Report and the First Draft Report for further details about implementation of APDRP in the state.

Table 3.6: Progress in 11 KV Feeders Metering (2004-05)

Circle/Division	11 KV Lines (Km)	11 KV Feeders (No.)	Feeders with Electronic Meters	
			(Nos.)	% to Total
Dimapur Circle				
Dimapur	534.4	20	0	0
Dimapur (Trans)	421.7	15	2	13
Kohima	285.0	25	15	60
Wokha	560.0	18	18	100
Phek	509.5	13	6	46
Sub-Total	2,310.6	91	41	45
Mokonchung Circle				
Mokokchung	578.0	9	4	44
Tuensang	689.0	29	11	38
Changtongia	334.0	22	6	27
Mon	583.7	26	5	19
Zunheboto	589.0	11	9	82
Sub-Total	2,773.7	97	35	36
State Total	4,965	188	76	40
Data Source: Status Report, APDRP (2004-05), PGCIL				

74. On the whole, the progress in metering in the state has been slow. DoP needs to make adequate provision for procurement of meters, especially consumer meters (estimated to be well over 50,000 nos.), in the current and future APDRP proposals and expedite the project implementation process.

3.5 Aggregate Technical & Commercial Losses

75. The energy accounting data reveals that T&D losses in the state have come down from 58.26 percent in 2003-04 to 53.73 percent during 2004-05. Aggregate technical and commercial (AT&C) losses have also declined from 69.2 percent to 62.85 percent over the same period due to improved billing and collection of revenue¹⁵.

76. However, in absolute term, T&D losses are still very high. While around 15-16 percent of the T&D losses would be technical losses, the balance reflects non-technical or commercial losses. Several factors are responsible for non-technical losses including rampant theft of power (Box 3.3). The present revenue management systems and administrative procedures are not adequate to deal with theft and pilferage of power.

77. Division-wise T & D losses show wide variation (Figure 3.6 & Annex 3.5). The divisions with significantly higher T & D losses as compared to the state-average are: transmission division of Dimapur (73.4 percent), Kohima (71.1 percent), Wakha (70.4 percent), Mon (69.4 percent), and Changtongia (57.8 percent). On the other hand, T & D losses are much lower in Phek (9.7 percent) and Zunheboto (21.1percent) divisions.

¹⁵ AT&C Loss estimate takes into account revenue collection rate in addition to conventional T & D losses. It is computed using the following formula:

$$1 - \left(\frac{\text{billed unit}}{\text{energy input}} \right) \times \left(\frac{\text{revenue collected}}{\text{amount billed}} \right)$$

Box 3.3: Factors Contributing to Non-Technical Losses

Consumer Metering: A large proportion of installed meters are non-functional. Besides, DoP has not pushed installation of electronic meters after facing the initial consumer complaints (e.g., meters move faster than the old electro-mechanical meters, or they show relatively higher consumption).

Average Billing to Domestic Consumers in Towns/Villages: The average billing is more of a common practice than exception. When the meter readers notify meters as non-functional, the JEs hardly conduct independent checking of the meters, or assess whether the meters are really defective or tampered. The routine inspection of meters is also inadequate given higher level of incidence of faulty meters. The bills are subsequently raised relying upon some useful-points of consumption or connected load. Since no record of appliances in the consumer premises are available and/or as the connected load data are based on what is being recorded at the time of providing connection, the average billing is far below the actual consumption.

Single-Point Meter for Multiple Consumers: It is a common practice to provide a single meter to a premise having multiple households and/or commercial establishments such as shop, STD booth, or restaurant. Billing based on single-point meter to a premise having only domestic consumers is not problematic as long as supply is metered and appropriate tariff is charged. In case of commercial consumers dwelling in a premise and the owner of the premise being treated as domestic consumer, there is substantial loss of revenue. The loss would be even more if the billing is based on average consumption. The study team has discovered a couple of such cases during field visits.

Theft of Energy: The electrical divisions do not conduct systematic check and raid to locate un-authorized or illegal connections. In some places, local conditions perhaps discourage divisions to undertake such action. In addition, meters are not adequately secured from tampering; a portion of the cable going into the sealed box remains exposed. Tampering of meters in connivance with technical staff is also quite common.

Internal Manipulation: High commercial losses are also attributable to (a) consumers ledger manipulation; (b) cash book manipulation; (c) receipt book manipulation; (d) under billing and so on. The computerised billing system by itself does not minimise the occurrence of such manipulations. Additional safeguards are needed for controlling internal manipulations and improve revenue generation.

Lack of Administrative Support and Legal Backup: In the absence of stringent anti-theft law and adequate administrative support, DoP finds it difficult to curb theft of power. However, the Electricity Act 2003 now provides a set of stringent provisions to book the offenders. The state government needs to work out the administrative mechanism for enforcement of these provisions.

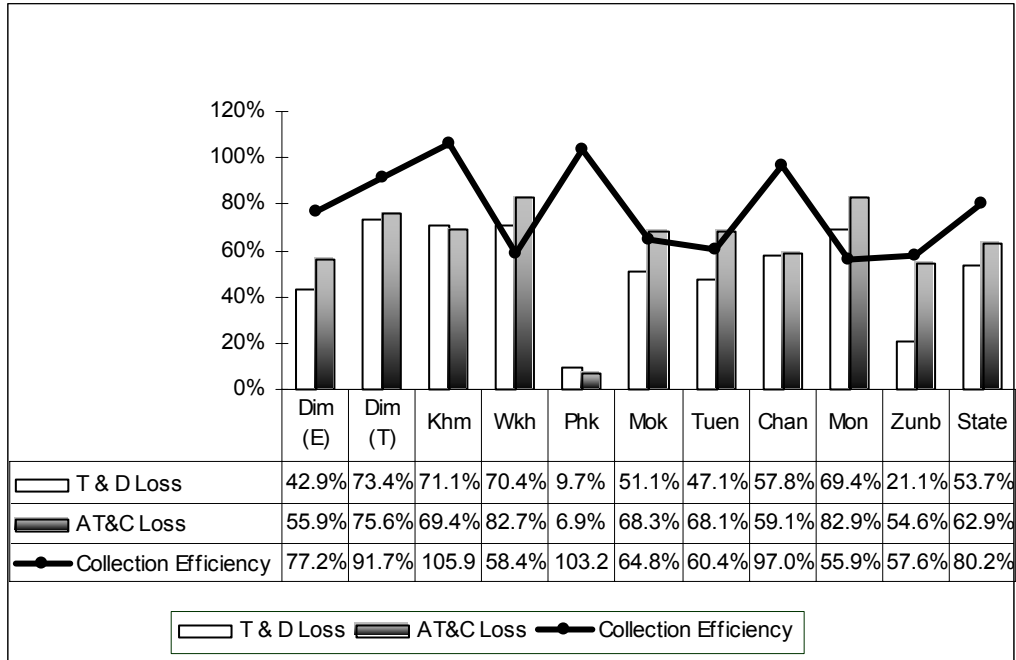
Lack of Adequate Public Awareness Programme: It is now a truism that without the active cooperation of public, theft of energy cannot be controlled. DoP has taken some initiatives to launch public awareness campaign. However, sustained campaign could not be undertaken due to fund constraints.

Given the present drive for implementing single-point metering to all villages, the above issues need to be addressed only for towns like Dimapur, Kohima and Mokokchung.

Note: The above observations are culled out from the Inception Report.

78. An important component of AT&C loss is the unrealised revenue. At present, overall revenue collection rate in the state is 80.2 percent (*Figure 3.6*).

Figure 3.6: Division-Wise AT&C Losses (2004-05)

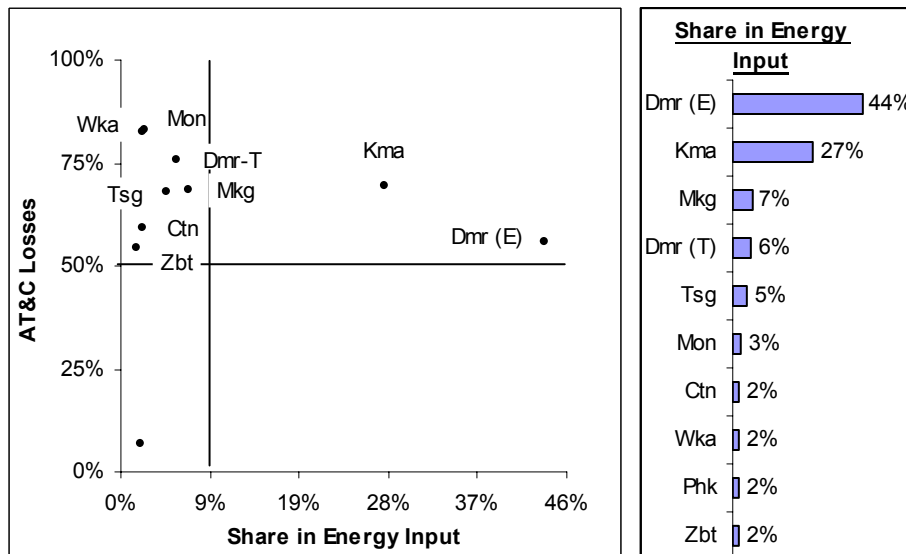


79. Division-wise collection efficiency, however, varies widely. The divisions with more than 90 percent collection rate are: Kohima (105.9 percent), Phek (103.2 percent), Changtongia (97.0 percent), and transmission division of Dimapur (91.7 percent). Kohima and Phek electrical divisions have also recovered past dues during 2004-05. But, revenue collection in a major division like Dimapur (77.2 percent) that accounts for chunk of energy input is much below the state average collection rate.

Energy Input and AT&C Losses

80. The impact of AT&C losses of a division depends upon two factors - the magnitude of loss and the level of energy input to the division. To analyse the combined effect, the divisions are placed on two dimensions, with horizontal axis representing share of each division in the total energy input and vertical axis measuring AT&C losses (*Figure 3.7*).

Figure 3.7: AT&C Loss Impact (2004-05)

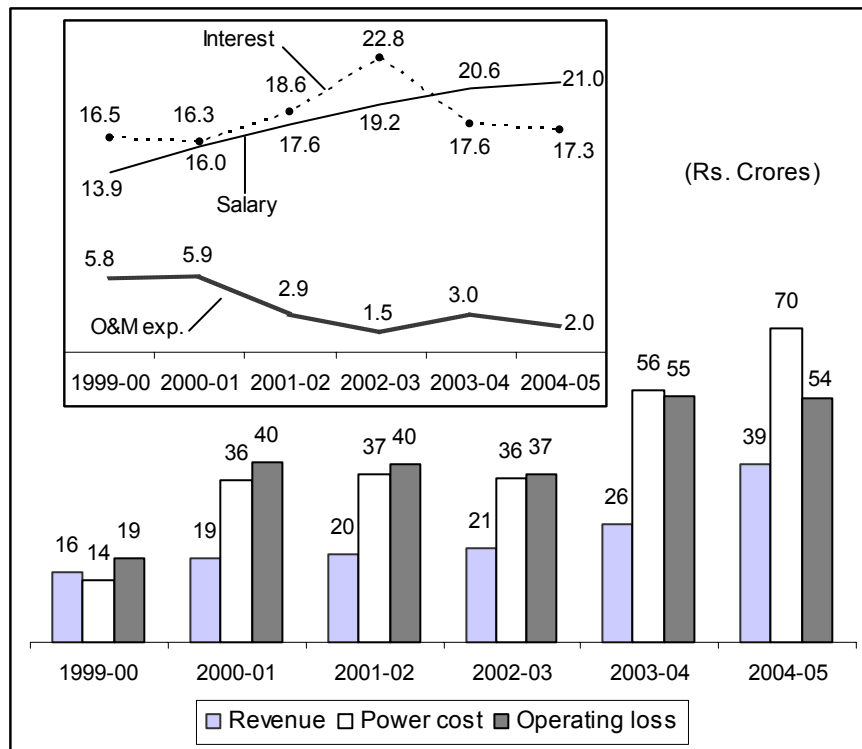


81. In terms of energy input, the share of Dimapur electrical division is the highest (44 percent) followed by Kohima (27 percent), Mokokchung (7 percent), Dimapur transmission (6 percent), and Tuensang (9.2 percent). But in terms of AT&C losses, their rank orders are different - Dimapur ranks 8th (56 percent), Kohima 4th (69 percent), Mokokchung 5th (68 percent), Dimapur transmission 3rd (76 percent), and Tuensang 6th (68 percent). Needless to say that that these five divisions out of ten revenue divisions must be the focal point for every action plan directed towards reduction in AT&C losses. As a matter of fact, it would be imperative for DoP to set year-wise targets for loss reduction in these five divisions.

3.6 Financial Losses

82. Annual operating loss (excluding depreciation and interest charges) of DoP has grown phenomenally in the recent past, from Rs.19 crores in 1999-00 to Rs.54 crores during 2004-05 (*Figure 3.8 & Annex 3.6*). The loss today is nearly three times the operating loss incurred during 1999-00. Taking into account interest payment (Rs. 17 crores) on outstanding loan, annual loss goes up to Rs.71 crores. If we further consider pension outgo (estimated to be Rs.1.23 crores) and provide for depreciation (estimated to be Rs.8.95 crores), net financial loss for the fiscal year 2004-05 turns out to be Rs.81 crores, which accounts for nearly 1.2 percent of GSDP.

Figure 3.8: Financial Losses



83. During 2004-05, revenue collection within the state and outside the state (through UI of 63.32 MU) was Rs.27.60 crores and Rs.11.89 crores respectively. As against these revenue receipts, total expenditure was Rs.93.55 crores comprising of: power purchase cost of Rs.69.71 crores (including payment of Rs.6.02 crores toward past dues); Rs.21.00 crores for salaries and wages; Rs.0.80 crore for other establishment

expenses; and Rs. 2.04 crores toward O&M expenses. Thus, total revenue collection of Rs.39.49 crores could cover only 42 percent of the operating expenditure during the fiscal year 2004-05.

84. It may further be noted that revenue arrears as of 31 March 2005 stands at Rs.19.06 crores, which is equivalent to little over 8 months' revenue collection within the state. It is not clear how much of it is really bad debt¹⁶. Whatever it may be, it is quite obvious that DoP needs to initiate a major drive to collect old dues.

85. On the expenditure side, DoP has cut down O&M budget drastically over the years due to paucity of funds. The current outgo is about one-third the level of O&M spending (Rs.5.8 crores) in 1999-00 (*Figure 3.8*). This is an area of great concern and DoP needs to step up O&M budget with proper planning and stocking of O&M materials.

Revenue Gap

86. While average tariff for billing in 2004-05 is estimated to be Rs.2.43 per unit, the operating cost (excluding depreciation and interest) of power supply works out to be Rs. 6.30 per unit, leaving thereby a revenue gap of Rs.3.87 per unit (*Table 3.7*). Thus, average tariff for energy sale within the state recovers only 39 percent of the operating cost of supply.

87. It may also be noted that the major component of the supply cost is the power cost. Though the average power purchase rate has been Rs.2.12 per unit, the actual supply cost turns out to be Rs.4.58 per unit of billing due to T & D loss of 53.73 percent.

88. Of late, the revenue gap has narrowed down a bit on account of better billing and revenue collection through single-point metering in villages (discussed later) and additional revenue earning from UI (i.e., by surrendering allocated share of power) of Rs.11.89 crores. However, the crux of the problem is very high level of T&D losses, which renders the power cost at supply level more than double the purchase rate.

Table 3.7: Unit Costs and Revenue Gap (2004-05)

(Rs. per unit of sales)	Power Cost ¹	Estab. Exp. ²	O & M Cost ³	Total cost (A)	Average Tariff ⁴ (B)	Revenue Gap (A – B)
	4.58	1.57	0.15	6.30	2.43	3.87
<p>1. Billed unit within the state: 139.15 MU Power purchase cost (excluding payment of past dues): Rs.63.69 crores Unit cost of power = 636.9/139.15 = 4.58 Rs./unit</p> <p>2. Establishment expenses (including salaries & wages): Rs.21.80 Rs. crores Unit establishment cost = 218/139.15 = 1.57 Rs./unit</p> <p>3. O & M expenses: Rs.2.04 crores Unit O & M cost = 204/139.15 = 0.15 Rs./unit</p> <p>4. Billed revenue: Rs.33.85 crores (Source: PGCIL Status Report, 2004-05) Average billed tariff = 338.5/139.15 = 2.43 Rs./unit</p>						

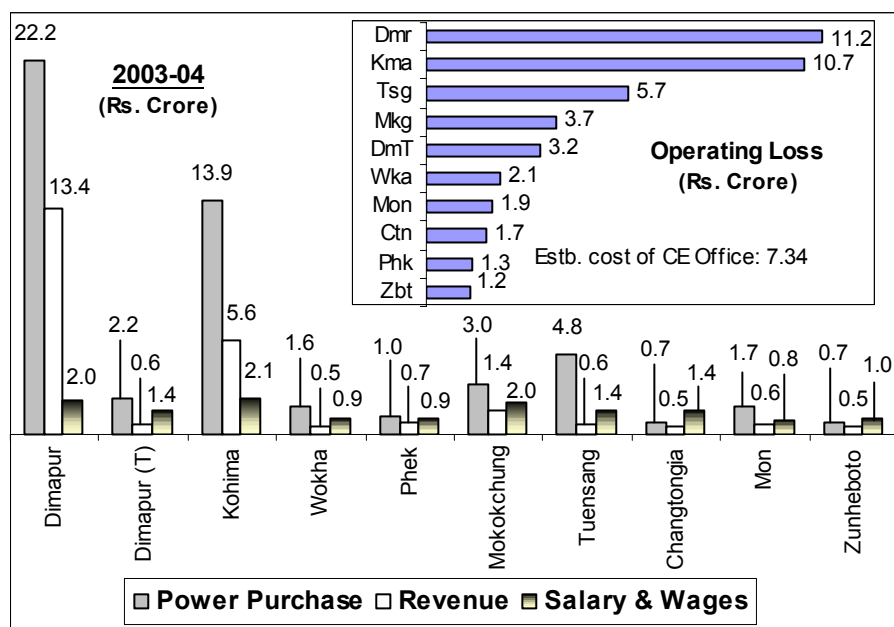
¹⁶ The division-wise break up of receivables (Rs. 19.05 crores) against sales of power is as given under:

DMR	DMR-T	KMA	WKA	PHK	MKG	TSG	CTN	MON	ZBT	Total
1.66	3.40	4.86	1.52	1.85	0.51	0.0	4.41	0.0	0.84	19.05

Division-Wise Financial Performance

89. In this report an attempt has also been made to estimate operating loss of the individual divisions for the year 2003-04 (*Figure 3.9 & Annex 3.7*)¹⁷. For the purpose of our estimation, the power purchase cost (Rs.51.7 crores) has been allocated to the ten divisions in proportion to their respective shares in total energy input¹⁸.

Figure 3.9: Division-Wise Operating Loss



90. In terms of operating loss, Dimapur (Rs.11.2 crores) and Kohima (Rs.10.7 crores) electrical divisions are the top-ranking divisions (*Figure 3.8*). However, barring Dimapur and Kohima, revenue collection from sale of power in each of the other divisions not only falls short of power purchase cost, it cannot even meet the divisional expenditure on salary and wages.

91. Division-wise analysis for the year 2003-04 further reveals that the CE office at Kohima spends annually Rs.6.66 crores for salaries and Rs.0.68 crore for other establishment expenses. Thus, the total expenditure of the CE office accounts for over *one-third* of the total establishment cost (Rs.21.67 crores) of the power department. DoP therefore needs to undertake reorganisation of the CE office.

Securitization of Dues to CPSUs

92. Over the years, poor revenue collection and mounting losses have resulted in state dues to central public sector undertakings (CPSUs) for power purchase. As on 30 September 2001, the state dues stood at Rs.100 crores including surcharge (*Table 3.8*).

93. GoN has now agreed to issue bonds worth Rs.78.92 crores under one-time settlement scheme of securitization. The issue of bonds would cause annual interest burden of Rs.6.71 crores on the state finances. The repayment of principal in 20 half-yearly instalments would begin after 5 years from the date of issue and the annual

¹⁷ The analysis could not be carried out for the fiscal year 2004-05 as DoP could not provide relevant division-wise financial data.

¹⁸ However, we have not apportioned to the divisions revenue worth Rs.1.89 crores that CE office collects.

burden, along with interests, would become around Rs.15 crores. DoP has given an understanding that currently it has no outstanding dues for power purchase.

Table 3.8: Securitization of Power Purchase Dues

(Rs. Crores) CPSU	Principal Amount	Surcharge	40 percent of Surcharge	Amount of Bond Issue
NEEPCO	47.87	25.51	10.20	58.07
NHPC	5.59	3.31	1.33	6.92
PGCIL	11.45	6.19	2.48	13.93
Total	64.91	35.01	14.01	78.92

3.7 Reform Initiatives

94. As mentioned in the previous chapter, the state has extended the communitisaion programme to the power sector. If implemented successfully, the communitisaion programme would become a corner stone of power sector reforms in the state. This may even evolve as a role model for the rest of the country. We will present our review on the single-point metering in Chapter 5.

Rating by ICRA & CRISIL

95. Apart from the communitisation programme, the state has not yet taken any other noteworthy reform initiatives. In terms of reforms performance, the rating of the state is extremely low. The rating agencies ICRA and CRISIL have awarded a score of 15.80 (as per the Report, dated March 2005) on a rating scale of 100 points (*Annex 3.8*). The rating has marginally increased over the previous score of 14.13 because of increase in both cash collections and non-plan allocation to DoP and thereby resulting in timely servicing of debt obligations and satisfactory payment for power purchase.

4. PERSPECTIVE POWER PLAN

4.1 Demand for Power Based on Historical Trend

96. A meaningful projection of energy requirement and peak demand requires reliable estimates of current level of energy consumption (category wise and load wise) and proper assessment of other influencing variables such as potential growth in industry, price sensitivity, and impact of energy conservation measures. Though reliable data and information are not available, an attempt has been made in this chapter to project power demand and develop a perspective power plan for the state of Nagaland¹⁹.

97. As mentioned in the previous chapter, peak load has grown at a CAGR of 7.75 percent over the last four years ending 2004 (*Figure 3.3 & Annex 3.2*). This is marginally higher than the growth rates assumed under CEA projections (2001-02 to 2006-07: 6.96 percent; 2006-07 to 2011-12: 7.55 percent; and 2011-12 to 2016-17: 7.32 percent). Assuming that historical growth rate would continue, year-wise peak load would be almost equal to the forecasts already made by CEA (*Table 4.1*).

98. It may be recalled that domestic consumption of electricity constitutes 56 percent of the total, while industrial/commercial/bulk consumption accounts for another 38 percent. As noted in the previous chapter, domestic consumption has grown at CAGR of 4.5 percent over the period from 1995-96 to 2003-04. During the same period, growth in industrial/commercial/bulk consumption has been less than 2 percent. The overall consumption of electricity, however, has grown at a CAGR of 3.3 percent since 1995-96. The slow growth rate is partly attributable to scheduled load shedding in urban centre like Dimapur. But it also reflects, among other factors, typical low electricity consumption pattern in villages.

99. Given the historical trends, CEA projections appear to provide the upper limits of growth both for peak load and energy requirement. However, we cannot simply rely on historical growth trends. In the discussion that follows, we present an upfront assessment of expected increase in load in the state.

4.2 Assessment of Additional Load

100. For assessing future expected load in the state, the following persons, among others, have been consulted:

- Director, Industries & Commerce (Er. G Keppen Rengma)
- Chief Town Planner, Town Planning Department (Mr. Ken Keditsu)
- Managing Director, Nagaland State Mineral Development Corp. Ltd.(Mr. Vikho Yhoshu)
- Addl. Transport Commissioner, Transport Department (Mr. Meren Paul)

¹⁹ This chapter is reproduced from the First Draft Report. Power demand is projected taking 2004-05 as base year.

Table 4.1: Demand Forecasts Based on Historical Trend

	Peak Load (MW)		Energy Requirement (MU)															
	CEA ⁴	Historical ⁵	CEA ⁶	Historical ⁷														
2003-04	80	65	312	278														
2004-05 (Base Year)	86	85	335	365														
2005-06	92	92	360	395														
2006-07 ¹	98	99	387	425														
2007-08	105	107	416	459														
2008-09	113	115	447	494														
2009-10	122	124	480	532														
2010-11	131	134	516	575														
2011-12 ²	141	144	554	618														
2012-13	151	155	595	665														
2013-14	162	167	639	717														
2014-15	174	180	686	773														
2015-16	187	194	736	833														
2016-17 ³	200	209	790	897														
Overall CAGR	7.3%	7.8%	7.4%	7.8%														
¹ End of 10 th Plan ² End of 11 th Plan ³ End of 12 th Plan ⁴ Growth rate assumed under CEA projection: 2001-02 to 2006-07 6.96% 2006-07 to 2011-12 7.55% 2011-12 to 2016-17 7.24% ⁵ Projection based on historical CAGR (2000-2004) 7.75% ⁶ Growth rate assumed under CEA projection: 2001-02 to 2006-07 7.52% 2006-07 to 2011-12 7.42% 2011-12 to 2016-17 7.32% ⁷ Energy requirement is estimated using annual load factor as given below: <table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: right;"><u>2003-04</u></td> </tr> <tr> <td>Energy requiremnt in MU</td> <td style="text-align: right;">278.48</td> </tr> <tr> <td>Power purchase</td> <td style="text-align: right;">263.52</td> </tr> <tr> <td>Free power</td> <td style="text-align: right;">14.96</td> </tr> <tr> <td>Peak load in MW</td> <td style="text-align: right;">65</td> </tr> <tr> <td>Annual load factor (%)</td> <td style="text-align: right;">49</td> </tr> <tr> <td>CEA's projected load factor for 2003-04 (%)</td> <td style="text-align: right;">44.5</td> </tr> </table>						<u>2003-04</u>	Energy requiremnt in MU	278.48	Power purchase	263.52	Free power	14.96	Peak load in MW	65	Annual load factor (%)	49	CEA's projected load factor for 2003-04 (%)	44.5
	<u>2003-04</u>																	
Energy requiremnt in MU	278.48																	
Power purchase	263.52																	
Free power	14.96																	
Peak load in MW	65																	
Annual load factor (%)	49																	
CEA's projected load factor for 2003-04 (%)	44.5																	

101. Based on the field interactions and data and information available from DoP, it is estimated that the power demand in Dimapur and adjoining areas would go up from the existing level of 28 MW to 80.5 MW in near future (*Table 4.2*). The incremental load requirement of 52.5 MW would arise on several accounts, most important of which are the following:

- Suppressed urban demand of 15 MW in Dimapur city which will be met consequent upon ongoing system improvement and up-gradation of 132 KV sub-station from present 40 MVA to 60 MVA
- Incremental demand of 10 MW for *industrial growth centre* and 5 MW for *export promotion industrial park*, both at Ganeshnagar (if fund is available, construction works will be completed within a period of one year)

Table 4.2: Estimated Additional Demand for Power

Additional Power Load		MW	Phasing over years (assumptions based on available information)						
			2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
SL. No. Dimapur town and adjoining areas									
1	Suppressed Demand	15	5	15	15	15	15	15	15
2	Industrial Growth Centre: Ganeshnaga	10	3	10	10	10	10	10	10
3	Export Promotion Industrial Park: Ganeshnagar	5	1.5	5	5	5	5	5	5
4	IOC's LPG Bottling Plant	1	0.25	1	1	1	1	1	1
5	Chumukedima District HQ	1	0.25	1	1	1	1	1	1
6	ARTC Shokhuvi	2.5	1.5	2.5	2.5	2.5	2.5	2.5	2.5
7	Mechanised Brick Plant	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
8	Referral Hospital (4th Mile)	2.5		1.5	2.5	2.5	2.5	2.5	2.5
9	Rangapahar Army Cantonment	5		1.5	3	5	5	5	5
10	Calcium Carbide Plant	10					5	10	10
	Sub-Total in MW	52.5	12	38	40.5	42.5	47.5	52.5	52.5
Rest of Nagaland									
11	Cement Plant (Laluri)	30						15	25
12	Miscellaneous projects	5	1.5	5	5	5	5	5	5
	Sub-Total in MW	35	1.5	5	5	5	5	20	30
Total Additional Power Load in MW		87.5	13.5	43.0	45.5	47.5	52.5	72.5	82.5

- New demand of 10 MW power for the proposed calcium carbide plant at Dimapur (the Kolkata based company has not yet set up the plant)

102. Power demand is also expected to go up by 30 MW on account of the proposed cement plant at Laluri (Phek District). According to pre-feasibility report, this cement plant will have one million tonne capacity and will have annual energy requirement of 175 MU.

103. According to information available from Nagaland State Mineral Development Corp. Ltd., a marble plant is likely to be set up in Phek District. Since no project report has yet been prepared, power requirement for this plant could not be estimated.

104. In addition to above, miscellaneous projects would create additional demand of about 5 MW. These projects include: construction of new capital, supermarket complex, ISBT complex, and more street lighting at Kohima; town halls at Pftusero and Phek; indoor stadium at Kiphira; outdoor stadium at Tuensang; Naga Hospital; Zunheboto college (academic block and hostel building); rest house and amenity centres at Dimapur; etc.

105. On the whole, it is estimated that additional load would be 87.5 MW provided two important projects, namely carbide plant at Dimapur and cement plant at Laluri, come up as contemplated (*Table 4.2*). In addition, there would be normal growth in the existing load. Taking both in accounts, demand for power has been projected as described in the following section.

4.3 Demand Forecast (Simulation)

106. For demand forecasting, Monte Carlo Simulation technique has been applied under two scenarios. *Scenario-I* excludes estimated load requirement for the carbide plant and the cement plant, whereas *Scenario-II* considers power requirement for both the projects. The projection has been made for the period from 2004-05 to 2016-17 (end of 12th Plan).

107. The key assumptions underlying the forecast are (*Table 4.3*):

- Annual load factors would be 50 percent, 53 percent and 55 percent during the 10th, 11th, and 12th plan periods respectively.
- Growth rates for existing load would vary between 2 to 6 percent per annum with higher probabilities being attached on the rates between 4 and 5 percent.
- Carbide and cement plants would come up after 5-6 years.

108. The forecasts under the two scenarios represent average values for peak load and energy requirement derived from large number of simulation trials for each year. The major findings are as follows (*Table 4.3 & Figure 4.1*).

109. Under both the Scenarios I & II, peak load would increase to about 119 MW by the end of the 10th Plan (2006-07), reflecting an increase by 54 MW from the existing level of 65 MW. The estimated figure is higher than the corresponding CEA projected peak load value of 98 MW.

110. Under *Scenario-I*, peak load is projected to grow to 136 MW (CEA forecast: 141 MW) by the end of the 11th Plan (2011-12) and to 155 MW (CEA forecast: 200 MW) by the end of the 12th Plan (2016-17). In other words, unless new load due to carbide and

cement plants come up, peak load growth would remain below the levels projected by CEA.

Table 4.3: Demand Forecast Based on Simulation Model

	Simulation Output			
	Scenario I		Scenario II	
	Average Peak Load (MW)	Energy Requirement (MU)	Average Peak Load (MW)	Energy Requirement (MU)
2003-04 (Base Yr)				
2004-05	82	359	82	359
2005-06	113	495	113	495
2006-07 ¹	119	521	119	521
2007-08	124	576	124	576
2008-09	127	590	132	613
2009-10	130	604	155	720
2010-11	133	617	168	780
2011-12 ²	136	631	171	794
2012-13	140	675	175	843
2013-14	144	694	179	862
2014-15	147	708	182	877
2015-16	152	732	187	901
2016-17 ³	155	747	190	915
CAGR	5.4%	6.3%	7.3%	8.1%
CAGR / CEA	7.4%	7.4%		

Memo Items	Growth in Existing Demand			Load factor (%)	
	Value	Cum Prob	Prob		
	1.0%	0%	0%	Up to 2006-07	50
Sample Value	2.0%	5%	5%	Up to 2011-12	53
3.1%	3.0%	15%	10%	Up to 2016-17	55
	4.0%	55%	40%	<u>Additional load under Scenario II</u>	
	5.0%	85%	30%	Calcium carbide plant	10 MW
	6.0%	100%	15%	Cement plant	30 MW

¹ End of 10 th Plan

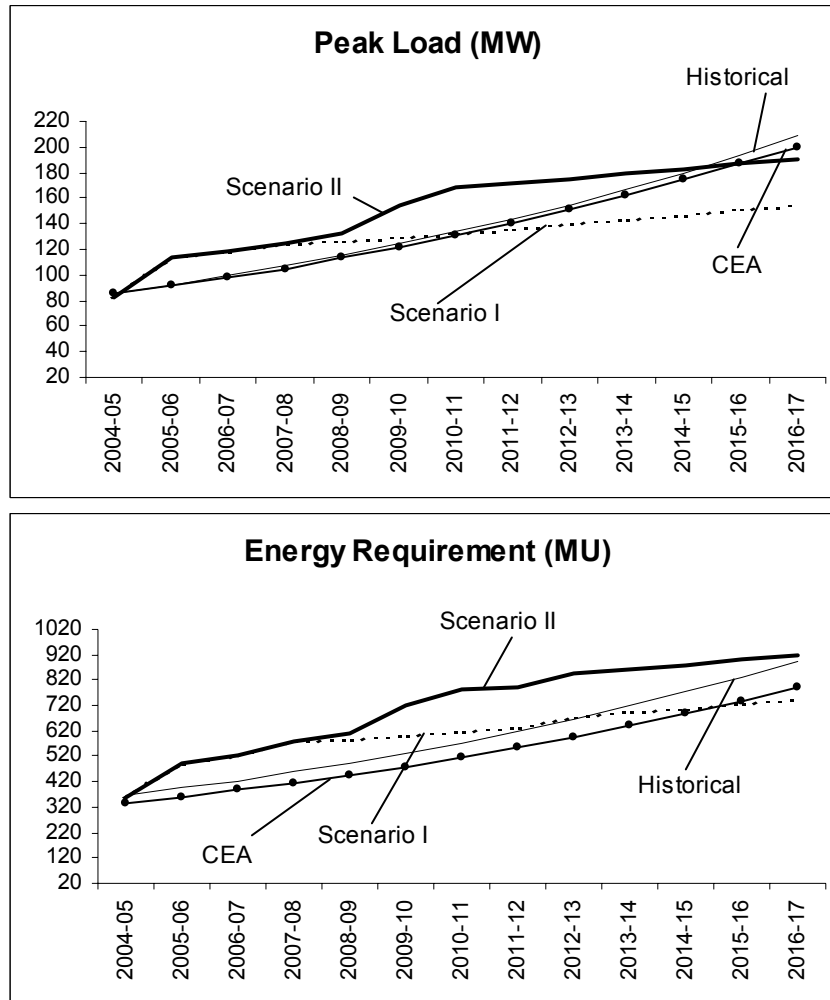
² End of 11 th Plan

³ End of 12 th Plan

111. However, if the proposed carbide and cement plants come up in the mid-term period as contemplated under *Scenario-II*, peak load is projected to grow to 171 MW (CEA forecast: 141 MW) by the end of the 11th Plan (2011-12) and to 190 MW (CEA forecast: 200 MW) by the end of the 12th Plan (2016-17). Thus, year-wise growth in peak load under *Scenario-II* is expected to be faster than the projected growth rates by CEA. But, the ultimate peak load by the end of the 12th Plan would not exceed 200 MW as projected by CEA.

112. Turning to energy requirement, it is projected, under both the scenarios, that the state would require 521 MU (CEA forecast: 387 MU) by the end of the 10th Plan. In other words, energy requirement would increase by 87 percent from the base year level of 278.48 MU (power purchase of 263.52 MU plus free power of 14.96 MU).

Figure 4.1: Comparative Projections



113. Under *Scenario-I*, energy requirement will grow slowly after the 10th Plan and it would reach the level of 631 MU (CEA forecast: 554 MU) by the end of 11th Plan and 747 MU (CEA forecast: 790 MU) by the end of 12th Plan. Taking into account the possibility of setting up of the carbide and cement plants, i.e., under *Scenario-II*, energy requirement would be 794 MU by the end of 11th Plan and 915 MU by the end of 12th Plan.

4.4 Recommendations

Mid-Term Power Plan

114. Comparative projections under different methods (projections based on past trends; assessment of new load and projections based on simulation model; and CEA forecasts) suggest that over the next ten-year period, from 2005-06 to 2014-15, Nagaland may have, at the most, a peak load of 182 MW and energy requirement of 877 MU (*Figure 4.1*). However, the additional load is estimated based on field interactions and quite tentative in nature. Besides, there are no firm commitments to set up carbide and cement plants.

It is recommended that DoP develop a power plan for a peak load of 171 MW and energy requirement of 794 MU by the end of the eleventh plan (2011-12).

Capacity Addition

115. There would be always a need for building new generating capacity, especially from the point of view of providing energy security in the event of emergency situations such as inter-state grid failure or non-availability of adequate power for procurement. But creation of new generating capacity does not make much sense under a situation where more than 50 percent of energy input is going to be lost in the systems.

It is advisable that GoN accord first priority to completing distribution reforms rather than to capacity addition. In the long run, any plan for capacity addition should preferably focus on developing higher capacity hydro project.

116. There is a big advantage of building relatively large-scale project such as 120 MW Dikhu multipurpose projects. Right from project construction through operation and maintenance, a bigger project would provide better opportunity for career progression to the civil, mechanical and electrical engineers of DoP, who have been for long facing career stagnation.

117. The project financing may be an issue for which DoP would require to explore all possible financing routes including funding support from multilateral agencies like Asian Development Bank (ADB). Incidentally, ADB has been actively providing structural loans to Assam including power sector reform loan. ADB funding support is also available for capacity building for operation and maintaining the project.

118. Going by the experience of Likimro hydro project, DoP lacks adequate in-house expertise to operate and maintain power-generating stations. Thus, there is a need for building in-house capacity to operate and maintain power stations.

It is recommended that DoP hire experienced engineers and staff from neighbouring projects (who are on the verge of retirement, or just retired, or availed of VRS) on a consolidated pay package. This would enable on-the-job training of the DoP engineers and staff, as well as reduce the cost of hiring.

119. Without adequate T & D capacity building, it would not be feasible to meet the growing requirement of power, irrespective of whether power is being generated or procured from available sources. The present transmission capacity, even after systems strengthening, would not be adequate to handle transmission of more than 85-90 MW.

It is recommended that DoP draw up a plan for augmenting T & D capacity under the APDRP schemes.

Power Procurement

120. Given the priority on distribution reforms rather than on creation of new generating capacity, it is important to assess whether power requirement of the state could be met through power procurement. Our assessment is that GoN would not find it difficult sourcing required quantity of energy. First, the targeted T & D loss reduction itself can meet a large part of the incremental energy requirement over the coming years. Second, as discussed later in this report, reform would result in gradual hike in electricity tariffs and this, in turn, curtail energy demand to a great extent. Finally, in the emerging scenario of power trading, power procurement is not likely to pose any major problem.

The state can always procure significant amount of incremental power requirement through bilateral contract with the Power Trading Corp. (PTC). Assam, for instance, has entered into a contract with PTC for power procurement up to 100 MW.

It is recommended that GoN avail of the entire entitlement of power supply from ISGS as purchase rate would be relatively cheaper, even cheaper than the cost of own generation. Besides, the state must consider the possibility of power procurement through bilateral agreement with power trading agencies.

Augmenting Rural Supply

121. The power plan also needs to emphasise distributed power systems as opposed to grid supply for geographically dispersed rural areas with low population density. GoN already has such a policy and in the past it had encouraged VCs for setting up of micro/mini hydro projects.

It is now time to develop a long-term strategy for developing stand-alone non-conventional sources of energy including solar projects to supplement grid supply in rural areas. Needless to say that the state government would be required to bear the capital cost of such projects. Thus, the cost of power generation, excluding capital recovery cost, would be very low and this, in turn, would support promotion of local industries, including bamboo-based industries, whose viability critically depends on availability of low cost power.

It is also recommended that the ownership of stand-alone projects (micro/mini hydro projects, solar projects, etc.), existing as well as new ones, be transferred to the VEMBs and the responsibility for operation and maintenance of the projects be entrusted with them. The process of ownership transfer may begin with those micro/mini projects that have been lying non-operational for long simply because technical hands including engineers have not been appointed.

The VCs/VEMBs must get their people trained for O & M activities. Alternatively, they may entrust the O & M activities with any local entrepreneur that may come up seeing the new business opportunity.

5. COMMUNITISATION – NAGA WAY OF REFORMS

5.1 Implementation of SPM in Villages

122. As mentioned earlier, being encouraged by visible improvements on account of communitisation in the field of elementary education and primary health services, the government of Nagaland has extended the programme to the power sector. This chapter presents a review of the progress of single-point metering (SPM) and billing systems²⁰.

123. The SPM aims at (a) reduction in AT&C losses associated with rural supply of electricity; (b) involving village community in the revenue management; and (c) making VEMB watchdog over theft of power (*Box 5.1*). In due course, the responsibility of VC/VEMB will be extended to management of the entire gamut of rural supply within the village, i.e., the rural distribution management would be completely decentralised.

Box 5.1: SPM Programme for Rural Supply

- Each VC constitutes a Village Electricity Management Board (consisting of 5 to 9 members). The functions and responsibilities of the Board will be as defined in the *Nagaland Communitisation of Electricity Management in Villages by Village Councils Rules, 2002*.
- The single-point supply, metering and billing to villages is done as per the conditions laid down in the *Additional Conditions of Supply of Electricity to Villages, 2002*.
- VEMB is served a single electricity bill through one main meter at the intake point (preferably at the HT side). In case there are more than one transformer points, DoP takes more than one meter reading but serves a single bill.
- DoP bills VEMB for supply of electricity at the flat rate of tariff as may be fixed by GoN from time to time. VEMB, in turn, is empowered to fix tariffs and collect revenue. The tariffs set by VEMB shall not exceed the general rates fixed by GoN.
- VEMB can retain the difference of amount between what is charged (currently Rs. 2.00 per unit) to consumers and what is payable (at present, Rs. 1.60 per unit) to DoP. Thus, VEMB gets a financial rebate on consumer tariff.
- All domestic consumers are required to pay bills based on 'useful-point system' (1 useful point = 40 watts) and not based on metered consumption. The meters are retained at consumers' premises under the responsibility of VEMB till further decision by DoP.
- The commercial, industrial and water works must pay electricity bills to VEMB as per the meter reading.
- VEMB has to bear the cost of street lighting and may adopt its own scheme of cost recovery from the village community.
- VEMB is empowered to recover energy bill arrears from the individual consumers.

124. During the year 2002-03, DoP introduced SPM in 158 villages. According to the DoP's status report (January, 2004), the initial experience had been encouraging (*Table 5.1*). The post-SPM billed revenue for the month of October 2003 increased, on the average, at a phenomenal rate of 86 percent over the pre-SPM bill.

²⁰ Some of the recommendations made in this chapter are drawn from the Inception Report.

Table 5.1: Pre-SPM vs. Post-SPM Billed Revenue

Sl. No.	Division	Pre-SPM Monthly Bill (Rs.)	Post-SPM Monthly Bill (Rs.)	% Increase
1	Mokokchung	117,525	223,119	90
2	Changtongya	19,472	22,420	15
3	Dimapur	62,268	113,647	83
4	Kohima	27,038	60,062	122
5	Phek	581	720	24
6	Mon	14,418	28,566	98
	Total	241,302	448,534	86

Source: Communitisation of Electricity Management in Villages, DoP, Jan 2004

125. Being armed with initial success, DoP has set targets for bringing 200 villages every year under SPM arena. However, not much progress has been made so far. As per the latest DoP report to MOP, GOI, out of 1217 villages electrified only 236 villages (i.e., about one-fifth) are covered under SPM as of May 2005.

Our Findings on Rural SPM

126. We now present our own analysis of the SPM programme based on data collected up to May 2004 from three divisions, namely Dimapur, Mokokchung and Kohima. The key findings are as follows (*Annex 5.1- Annex 5.3*).

127. During the period under study, the *average* post-SPM billed revenue increased by 117 percent for Dimapur electrical division, 123 percent for Mokokchung SDO-I, and 104 percent for Kohima division. Surprisingly, post-SPM billed revenue of Mokokchung SDO-II showed a negligible growth rate of 1 percent only. In fact, some of the sample villages (e.g., Debuia, Debuia Compound, Monchen, Japu) recorded significantly lower post-SPM billed revenue compared to pre-SPM billing. It is not clear why there had been a fall in billed revenue during post-SPM period in these villages.

Table 5.2: Collection Efficiency under SPM Programme

	Dimapur	Mokokchung SDO-I	Mokokchung SDO-II	Kohima	Overall
No. of Villages	17	22	45	13	
Study Period	Oct-03 to May-04	Sept-03 to May-04	Oct-03 to May-04	Sept-03 to May-04	Sept-03 to May-04
Collection (%)					
Average	32	72	71	22	54
Max	92	108	100	101	108
Min	10	0	0	0	0

128. We may further note that revenue collection in the three divisions did not match with the increased billing. In Dimapur and Kohima divisions, average collection rates were as low as 32 percent and 22 percent respectively (*Table 5.2*). Some villages had not even paid bills for several months²¹. The collection rates in Mokokchung sub-divisions I & II were over 70 percent. Though the performance of Mokokchung was much

²¹ For instance, Khuzama (under Kohima electrical division) did not pay any amount as against the cumulative bill of Rs. 3.2 lacs for the period from September 2003 to April 2004. Subsequently, Khuzama agreed to clear the dues in four installments and at the time of our study paid one installment.

better than Dimapur and Kohima divisions, the collection rates by themselves had not been impressive. We guess very slow or unimpressive revenue collection in the three divisions reflects teething problems of SPM implementation. Whatever they might be, DoP needs to address them proactively.

129. At present, the rural consumers (domestic) are sharing the single bill on the basis of 'useful points'. However, consumers in several villages (for instance, in villages under Kohima) have started resenting the useful points system and asking for installation of energy meters. This kind of reaction is expected because actual consumption of energy may be quite different from the quantity assessed on the basis of useful points.

130. Another important finding of our study is the bewildering variation in consumption of electricity per rural consumer across regions and villages. To give an idea, average rural consumption per consumer was found to be 114 units per month for Dimapur, 60 units for Kohima, 44 units for Mokokchung SDO-II and 27 units for Mokokchung SDO-I²². Such wide variation in consumption rate across the villages is difficult to explain and it raises doubts about the accuracy of the consumer database and/or the monthly meter reading for energy consumption. DoP needs to look into this matter immediately. The key point is that DoP must realise the full revenue potential through SPM.

5.2 Extension of SPM to Urban Areas

131. With successful beginning of the SPM programme in villages, DoP has initiated steps to extend the programme to urban areas. In an urban set-up, single-point refers to a transformer. The consumers connected with a given transformer would receive a single bill from DoP and share it among themselves based on metered consumption. Like VEMB, the consumers will form an urban electricity management board (UEMB), which will take up the responsibility of billing and revenue collection after signing a MOU with DoP. UEMB is entitled to a rebate of 12 percent on tariff payable to DoP²³.

132. To bring UEMB under the purview of the state's communitisation programme, the Nagaland Communitisation of Public Institutions and Services Act 2002 was amended during June 2004 and accordingly GoN issued a notification on 16 July 2004 for the Model Rules and Additional Conditions of Supply for UEMB.

133. So far UEMB has been set up in one ward each in Kohima and Dimapur. DoP claims that the SPM programme in these two wards has improved revenue billing to the tune of 90 percent and increased in revenue collection of more than 200 percent. Being encouraged by the results, the power department now sets a target for SPM in 32 identified wards in Kohima, Dimapur, and Mokokchung.

Our Findings on Urban SPM

134. The first UEMB was set up at Sepfuzou in Kohima town and SPM was launched on 1st March 2004. The total number of consumers under this UEMB is 92, which includes 8 new consumers added after post-UEMB. The consulting team interacted with the members of the UEMB at Sepfuzou and also studied the records for the month of March

²² Similarly, gap between minimum and maximum consumption per consumer had been quite large. For instance, among the sample villages under Dimapur, Toluvi recorded maximum consumption of 220 units per consumer per month. L Hotovi village also recorded higher consumption of 205 units per consumer per month. In sharp contrast, energy consumption per consumer in Toulozouma village happened to be only 47 units per month.

²³ In case of HT metering, 7.5 percent as transformation losses on the units shall be deducted from the main bill. See the Model Rules and Additional Conditions of Supply for UEMB.

2004 (at the time of visit only one month data were available). The major findings are as follows.

135. The pre-and post-UEMB comparison (with respect to 84 consumers) revealed that there had been 103 percent increase in monthly consumption of energy in physical units (from 5,605 units to 11,399 units) and 156 percent increase in the billed amount in rupees (from Rs.8,900 to Rs.22,798).

136. We further noted that the metered consumption (10,615 units) plus assessed consumption (441 units) of 92 consumers during March 2004 was 11,056 units, whereas SPM reading was 11,520 units. The difference, thus, revealed a line loss of only 4 percent between the transformer-end and consumers-end. With this loss, overall T & D loss for the UEMB, assuming a line loss of 9 to 10 percent up to transformer-end, got dramatically reduced to around 13-14 percent. This is a remarkable achievement and leaves no doubt that transformer-based SPM programme has tremendous potential to reduce line losses in urban areas.

137. An important aspect of SPM is the involvement of consumers in the revenue management. During our field interactions, we could experience such involvement. For instance, members of the UEMB expressed their annoyance over the delay in replacement of some defective meters by DoP. Until recently, consumers have not shown any interest in replacement of defective meters because non-operational or defective meters provided opportunity for paying a token bill amount based on average consumption. Now that a single bill has to be paid collectively, the residents would like to pay their own bills based on actual metered consumption; no one would like to foot the bills for others.

5.3 Legal and Economic Issues

Status of VEMB/UEMB under the Electricity Act, 2003

138. Under the state's own Rules 2002, the status of VEMB/UEMB is that of a bulk consumer who is authorised to supply electricity to end users within its jurisdiction. This role may be retained subject to the provisions of the Electricity Act, 2003 (hereinafter referred to as Act 2003).

139. According to Section 12 of the Act 2003, one requires licence for distribution or trading of electricity. However, Section 13 grants exemption. Under the provision of this section, local authority, panchayat institutions, users' association, co-operative societies, non-government organisations, or franchisees shall not require licence for distribution or trading of electricity provided they are allowed to do so through notification by the appropriate regulatory commission, on the recommendations of the appropriate government, subject to such conditions or restrictions, if any, and for such period or periods as may be specified in the notification. Obviously, VEMB/UEMB may be covered under Section 13 and shall not require distribution/trading licence but only for the periods notified by the appropriate regulatory commission. Thus, Section 13 is somewhat restrictive in granting exemption from distribution/trading licence.

140. However, as provided under Section 14, DoP (or its successor entities) as a distribution licensee can authorise VEMB/UEMB as person (agent or franchisee) to undertake distribution of electricity in a specified area within its area of supply and as such VEMB/UEMB shall not require any licence from the appropriate regulatory commission. DoP (or its successor entities), of course, shall remain responsible as licence holder for distribution of electricity by VEMB/UEMB in the specified area.

Determination of Retail Tariffs by VEMB/UEMB

141. The power of VEMB/UEMB to fix tariff for consumers under its jurisdiction as given under the state's own Rules 2002 is not valid under the Act 2003. The sale of electricity by VEMB/UEMB to end-users has to be treated as retail sale of electricity and, as stipulated under Section 62 (1) (d) of the Act 2003, only the state regulatory commission has the power to determine retail tariff. Even the state government does not have any power to fix tariff for any category of consumers including local bodies and bulk consumers. However, the present system of allowing tariff rebate to VEMB/UEMB may be continued without empowering them to set the retail tariff. For that tariff rebate can be redefined as service charges for billing and collection of revenue.

Un-metered Supply

142. Section 55 of the Act 2003 provides that no licensee shall supply electricity, after the expiry of two years from the appointed date, without installation of energy meters. If VEMB/UEMB acts as independent local supplier requiring no licence for a specified period under Section 13, it has no legal obligation to install meters at consumer premises. But it should be borne in mind that Section 13 is somewhat restrictive in granting exemption from distribution/trading licence (*Para 135*).

143. However, if we reconstitute VEMB/UEMB under Section 14 as person authorised by DoP for distribution of electricity in a specified area, which is obviously the only unrestrictive option, then DoP would remain responsible as licence holder for distribution of supply in that specified area and as such it would have legal obligation under Section 55 to undertake supply of electricity through installation of energy meters. Section 55 further stipulates that no licensee shall supply electricity after the expiry of two years from the appointed date without installation of meters. This means installation of consumer meters for supply of electricity through SPM in villages may be deferred for a while but cannot be avoided.

Electricity Pricing for VEMB/UEMB

144. It may be noted the current realised tariffs from sale of electricity to VEMB or UEMB are not financially sustainable, because the tariffs do not recover even the power cost at the supply level. To appreciate the point, we estimate tariffs and supply cost of power as follows.

145. The present tariff for rural domestic consumer is set at Rs.2.00 per unit. On this rate, VEMB is allowed a rebate of 20 percent, i.e., VEMB can retain 40 paise per unit of the sale price. Thus, DoP realise Rs.1.60 per unit from rural domestic consumer under SPM system. Similarly, present domestic tariff for urban consumer under SPM is set at Rs.2.50. This rate is applicable on HT meter reading less 7.5 percent transformation loss between transformer-end and consumer-end. Furthermore, UEMB is allowed a commission of 12 percent on the billed amount. With all these adjustments, realised tariff for DoP is estimated to be $[Rs.2.50 \times (1 - 0.075) \times (1 - 0.12) =]$ Rs.2.04 per unit. We now turn to estimating power cost at the supply level.

146. At present, power input cost is Rs. 2.12 per unit (*Chap. 3, Para 56*). Assuming average T & D loss of 9 percent up to SPM level, power supply cost is estimated to be $[Rs.2.12/(1 - 0.09)=]$ Rs.2.33 per unit, which is higher than the realised tariffs from VEMB or UEMB. The under recovery of power cost works out to be $[Rs.2.33 - Rs.1.60=]$ 73 paise per unit for SPM supply in villages and $[Rs.2.33 - Rs.2.04 =]$ 29 paise per unit for urban supply. Needless to say that the entire SPM programme as it stands today is financially unviable.

5.4 Recommendations

SPM in villages

147. The SPM programme in villages is one of the core reform processes in Nagaland and there is an urgent need to expedite the programme implementation.

We recommend that the villages for SPM be selected in order of priority based on rank order by (a) number of consumers and (b) revenue potential. We have prepared such a list of 148 villages, with an estimated revenue potential of Rs.9 - 10 cr. per annum (Annex 5.4 & Table 5.3).

The villages with low load and lower potential for load growth can be provided with LT metering equipments instead of HT metering. Suitable LT metering equipments are readily available and the divisions themselves can install them.

A task force may be set up to develop action plans for expediting and overall control and monitoring of the SPM programme.

Table 5.3: Distribution of Recommended Villages for SPM

District	No. of Select Villages	Total No. of Households	Estimated Revenue Potential (Rs. Crores)
Dimapur	17	11,398	2.2 – 2.4
Khima	22	12,839	1.5 – 1.7
Mokokchung	11	6,603	0.6
Mon	30	16,474	1.4 – 1.6
Phek	19	10,507	0.9 – 1.0
Tuensang	38	21,437	1.9 – 2.1
Wokha	8	4,550	0.4
Zunheboto	3	1,641	0.1 – 0.2
Total	148	85,449	9.0 – 10.0
For list of villages see Annex 5.4.			

148. VEMB/UEMB is the backbone of the entire communitisation programme. It is imperative that DoP put in place enough safeguards against malfunctioning of the Board.

It is recommended that DoP retain the right to dissolve the Board for legitimate reasons such as fraudulent practices and non-performance (e.g., increased losses, poor collection, non-payment of bills, etc.). Section 9 of the Rules 2002 need be suitably amended for this purpose.

149. As mentioned earlier, revenue collection in villages have been somewhat slow during post-SPM period.

For prompt and regular collection of revenue, each VEMB may be asked to open an escrow account in favour of DoP for a sum equivalent to 2-3 months' energy bills. DoP may work out the modality of such account with suitable amendment/insertion in the Rules 2002.

150. As mentioned at the outset of this chapter, the responsibility of VEMB would eventually encompass the entire gamut of rural supply within the village, i.e., the rural distribution management would be completely decentralised.

As a step toward decentralisation, VEMB may be entrusted with the responsibility of conducting O & M activities and bear the expenses²⁴. VEMB may evolve a suitable mechanism to recover the expenses from their own consumers.

151. The success of the communitisation programme would ultimately depend on capacity building of VC/VEMB. The members of the Board and staff must undergo extensive training/workshop on rules, regulations, and guidelines in all kinds of technical and commercial matter.

For capacity building of VEMB, DoP must seek technical assistance and funding support from multilateral agencies like Department for International Development (DFID), UK who has been supporting capacity building programmes in various sectors in the states like Andhra Pradesh, West Bengal, and Orissa.

152. As mentioned earlier, installation of consumer meters in villages may be deferred for sometime but it cannot be avoided altogether.

We recommend that DoP draw up an action plan for procurement and installation of consumer meters in the villages under the APDRP scheme. The work of consumer metering must be taken up along with the progress in systems metering.

Tariff Revision

153. We have already noted that SPM programme in rural and urban areas are not financially viable at the going tariffs.

It appears that tariff cannot be lower than Rs.2.50 per unit (Rs.2.33 per unit for power cost at supply level plus a token contribution of 17 paise per unit toward recovery of other overheads). Adding a margin of 15 paise per unit, which is to be retained by VEMB/UEMB as billing and collection charges, the retail price need be reset at Rs.2.65 per unit.

²⁴ O&M expense would include such items as: (a) testing or repairing or replacement of meters; (b) repairing and maintenance of transformers, electric poles, conductors, etc; (c) cost of providing new service connections including cost of meter; (d) recruitment of additional staff on temporary or permanent basis; and (d) jungle clearance.

6. ROAD MAP FOR REFORM AND RESTRUCTURING

6.1 Reforms in Other States

154. As mentioned at the outset, the government of Nagaland has taken a major policy decision “to distance itself from the power industry, and provide the power sector with operational, managerial and financial autonomy required to operate according to commercial principles”²⁵. GoN now needs to evolve and implement measures for reform and restructuring in accordance with the provisions of the Electricity Act 2003 and keeping in view the special situation and distinctive needs of Nagaland.

155. It is relevant to briefly review the status of power sector reforms in different states in the country before outlining the roadmap for Nagaland. In the following paragraphs, we make a brief presentation in this regard.

156. Historically, every state has functioned as owner, operator and regulator in several sectors in the economy. The power sector has been no exception. Possibly, such structure was required in early period of economic growth and development. But, with the expansion of economy, increased complexity of business activities, and growing needs for private investment in building infrastructure, it has become imperative that state distance itself from directly running any commercial business, including business of power generation, transmission, distribution, and retail supply. The role of government should mainly relate to maintenance of law and order, formulation of policies and protection of public interest. This is not just a hypothesis but a generally accepted view in most countries as well as in different states in India.

157. The state power sector reforms in India have already witnessed this changing role of the government. Orissa was the first state to decide that the government would distance itself from the business of the state power utility. In mid-nineties, the erstwhile Orissa State Electricity board (OSEB) was unbundled, corporatised, and subsequently privatised. Following the Orissa model, other states – Haryana, Andhra Pradesh, Karnataka, Rajasthan, Uttar Pradesh/Uttarnchal, West Bengal and Delhi – enacted their state electricity reforms act or reforms bill and unbundled their electricity boards. Until now, 14 states have unbundled the State Electricity Boards, Maharashtra being the latest addition. With effect from 06.06.2005, MSEB has been restructured into four companies (*Annex 6.1*).

158. After Orissa, only Delhi has gone for privatisation. With some initial hiccup, the distribution business of Delhi Vidyut Board (DVB) has been taken over by BSES and Tata Power with effect from 1 July 2002. Thus, in the states other than Orissa and Delhi, the utilities have merely been unbundled into state owned companies.

159. The states like Tamil Nadu and Gujarat have not followed the unbundling model so far and the SEBs continue to be in charge of operation of the electricity sector. These states have reorganised their distribution business as profit centres. However, the SEBs in these states shall have to create a separate state transmission utility under the Electricity Act 2003.

²⁵ This is being stated in the TOR (*Para 1.2*).

160. A key component of power sector reform in any state is the establishment of a State Electricity Regulatory Commissions (SERC). At present, as many as twenty two states have constituted SERCs and eighteen have issued tariff orders (*Annex 6.1*).

6.2 Need for Creating Corporate Structure

161. At present, DoP functions within the bureaucratic set up of the government. For every decision, it needs government level clearance and, therefore, faces typical procedural delays including delay in release of funds. Under the present set-up, it cannot conduct business on commercial basis and, hence, attain financial sustainability for the power sector. DoP requires operational, managerial and financial autonomy to run the sector on commercial basis, and for that purpose reorganisation into a corporate entity is a generally regarded as the most logical step to follow.

162. The Electricity Act 2003 has further made it mandatory to conduct the business of generation, transmission, distribution and supply of electricity on commercial principles²⁶. Corporate structure is more amenable to bringing in this commercial orientation and fixing accountability for performance (both financial and non-financial) at every level of management. For government too, corporate structure makes it easier to identify the extent of hidden subsidies provided to the sector.

163. Reforms involve not just structural and institutional changes but also change in mind-set of all the stakeholders. In this context, it may be noted that there exists a general perception among many that electricity must be supplied free. Such perception stems from the fact that government is the owner of the utility as well as supplier of electricity. In the governmental set up, the employees do not care for professionalism and commercial orientation because such things have no real significance when supply of electricity is considered as a public welfare activity and, hence, a favour to the people. User charges are neither levied properly nor realised seriously. It is, therefore, expected that transforming DoP activities into an ambience of corporate entity would facilitate the change in mind-set of both the consumers and the employees.

164. However, there are some concerns about corporatisation. First, all the state owned enterprises in Nagaland are loss-making entities. The question arises how corporatisation of DoP would ensure financial viability. On this issue, we hold the view that corporatisation is not an end in itself. It is only a structural component of the reforms process. If performance improvement through other institutional changes were not put in place, even the newly created entity would fail to turnaround.

165. Second, employees in general are concerned about the after-effects of corporatisation in terms of such factors as service protection and continuity of pension scheme. In this regard, it may be noted that under the new Electricity Act 2003 it is obligatory on the part of government to ensure that terms and conditions on transfer of employees to new entity are not less favourable than those applicable before the transfer²⁷. Hence, restructuring and transfer of personnel from DoP to corporate entities cannot have any adverse consequence. On the contrary, experience of reformed states shows that generally the promotion and salary prospects of the employees have increased as a consequence of transfer to the new entity.

166. Third, it is also being suggested that a more practical approach to reform for a state like Nagaland would be to promote communitisation programme in the urban

²⁶ This is being stipulated as one of the guiding principles for tariff determination under Sec. 61.

²⁷ Refer to Sec.133, the Electricity Act, 2003.

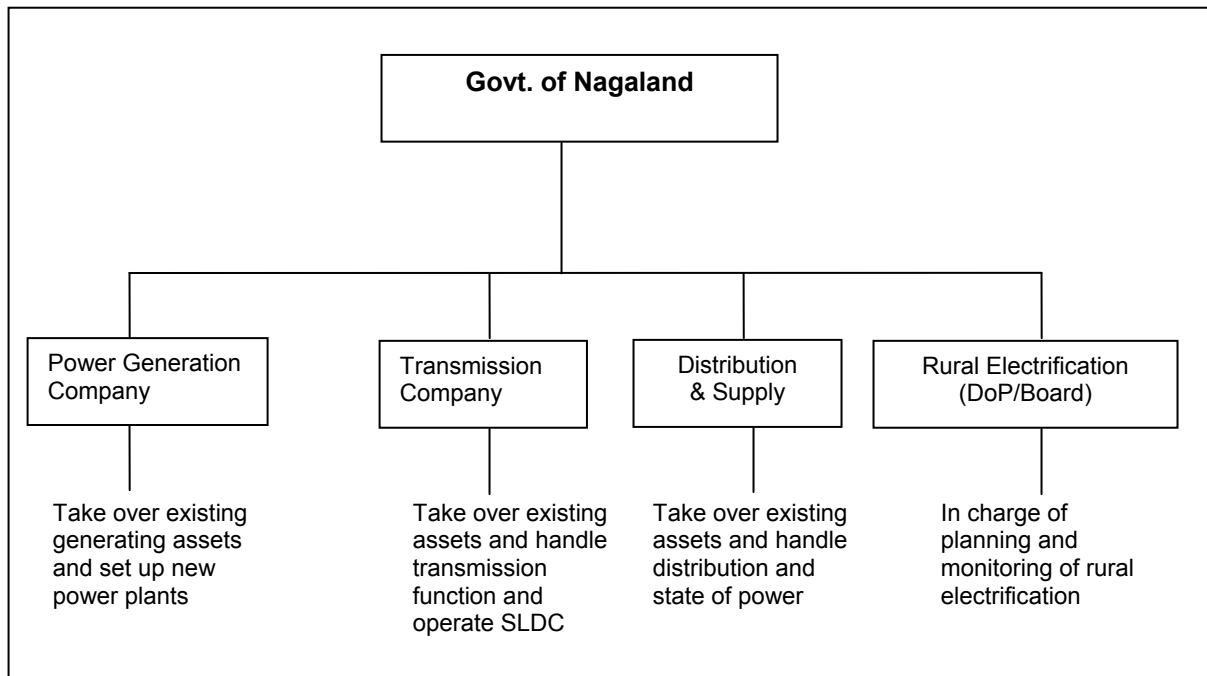
centres rather than corporatisation. But, we hold the view that communitisation and corporatisation are not mutually exclusive approaches. Both can be pursued simultaneously. Besides, DoP cannot rely solely on the communitisation programme, which is a long drawn process and depends upon *inter alia* the consumers' awareness and acceptance of the very concept.

6.3 Alternative Models for Corporatisation

Option I: Unbundling into Separate Functional Entities

167. One approach to corporatisation could be functional unbundling and creation of separate corporate entities for generation, transmission, and distribution/supply as has been done in several states (*Figure 6.1*). Govt may also create more than one distribution companies keeping in view, of course, the financial viability of each distribution utility.

Figure 6.1: Unbundling through Separate Entities



168. Under the new structure, the government would retain only the policy making power and bear the responsibility of safeguarding public interest, especially the interest of consumers with low paying capacity. The government may also retain direct control over rural electrification through DoP or creation of a separate Rural Electrification Department Board (*Figure 6.1*).

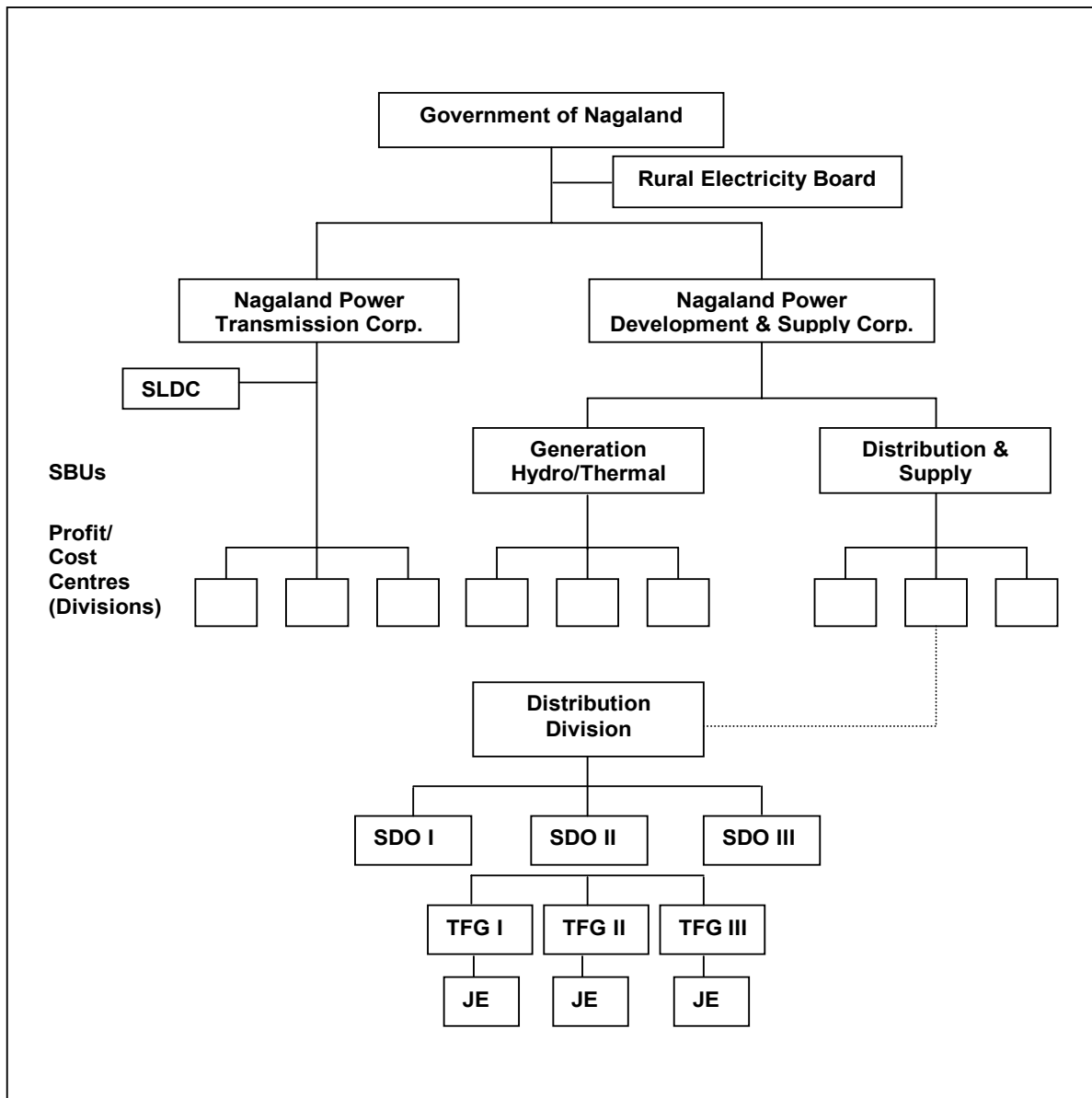
169. However, at the present stage of development in the power sector in Nagaland, individual functional entities would not have critical level of business for financial sustainability. While Dimapur and Kohima electrical divisions may operate as separate distribution companies because of their relatively higher business volumes, the other divisions do not even have the minimal volumes of business. Thus, creation of separate corporate entities for all segments of electricity industry does not appear to be feasible in the initial stage of reforms.

Option II: Establishment of a STU & One Corporate Entity

170. Under the Electricity Act, 2003, every state is now required to establish a separate entity as State Transmission Utility (STU) and notify it under Section 39. This is a legal requirement and, hence, cannot be avoided. The important steps for establishment of STU have been discussed separately in the next chapter.

171. Along with the establishment of STU, GoN may establish a separate corporate entity to take over generation, distribution and trading of electricity (*Figure 6.2*).

Figure 6.2: STU and Corporate Entity for Generation/Distribution/Trading



6.4 Recommendations

Restructuring Model

172. As mentioned at the outset, GoN has already taken the decision to provide the power sector with operational, managerial and financial autonomy necessary for conducting business according to commercial principles. The next logical step for the state would be to take the policy decision for institutional reorganisation.

It is recommended that GoN follow functional unbundling and corporatisation without any further delay. Establishment of a STU (as required under the Electricity Act, 2003) and another corporate entity for generation/distribution/trading of electricity is found to be more suitable option and, hence, recommended. The STU may be named as “Nagaland Power Transmission Corporation Limited”, while the generation and distribution company may be named as “Nagaland Power Development and Supply Corporation Limited”. At a later stage, GoN may consider further spin off of divisions like Dimapur and Kohima into separate distribution companies.

Both the STU and the new entity for generation and distribution of electricity have to be incorporated under the Companies Act, 1956 as wholly owned government companies. The new companies would take over respective assets/liabilities after being valued and/or restructured and individually sign a MOU with GoN. The process of establishing STU is discussed in the next chapter.

No licence would be required for generation. For distribution and trading of power, the new company being a government company would be treated as a deemed licensee under Section 14 of the Electricity Act, 2003.

Although a single entity would deal with generation, distribution and trading of power, these business segments must be segregated as cost or profit centres within the corporate structure. This is discussed in details in Chapter 8.

Rural Electrification

173. The experience of the reforming states suggests that rural electrification takes a back seat in the process of reform. This should not happen in a state like Nagaland where rural population accounts for little over 82 percent of the total population spread over a large number of villages and as many as 111 villages with 10,567 farming households are still living without supply of water and electricity (Annex 6.2).

As a part of institutional reorganisation, it is recommended that GoN set up a Rural Electricity Board (Figure 6.2). Till the time such a Board is constituted, it is advisable that DoP creates a separate cell to look after the activities of rural electrification. Establishment of REB/Cell would enable the government to plan, coordinate and control all activities of rural supply of electricity in an effective manner.

Establishment of State Electricity Regulatory Commission

174. One of the main components of the power sector reform is to establish independent regulation. GoN has to distance not only from running the business of electricity supply industry but also from the process of tariff setting. Under the Electricity Act, 2003 regulation of the sector and tariff determination shall remain under the exclusive jurisdiction of the State Electricity Regulatory Commission (SERC). It may be

noted that establishment of SERC is a time bound mandatory requirement but GoN has not yet set up its Commission and as such it has already become a defaulting state.

It is recommended that GoN establish its own regulatory Commission immediately. The Commission may be known as Nagaland Electricity Regulatory Commission and should be headed by a single Chairperson-cum-Member. The process of establishing the Commission is discussed in details in Chapter 9.

Rationalisation of Tariffs and State Subsidy

175. The Electricity Act, 2003, Section 61(g), stipulates “that the tariff progressively reflects the cost of supply of electricity and also reduces and eliminates cross-subsidies within the period to be specified by the Appropriate Commission”. This stipulation is important because electricity prices for domestic and agriculture consumers have historically lagged far behind the cost of supply in all the states including Nagaland. And any effort to rationalise tariffs with gradual phasing out of cross-subsidies would cause tariff hike during the initial phase of reform.

We recommend that GoN/SERC follow a gradual increase in tariffs and come out with a multi-year tariff projection showing how tariffs would get stabilised once the transition phase is over and the state utility achieves a financial turnaround. It may also be highlighted that tariff increase beyond the transition period would be on account of general inflation only. (We have assumed such a multi-year tariffs while preparing the financial restructuring plan in Chap.8.)

176. In the previous chapter, we noted that tariffs levied under rural/urban SPM system are not adequate to recover even the power purchase cost. While overall tariff hike would be inevitable, GoN may like to consider providing subsidy for rural and economically weaker segment of the consumers.

The experience across the world suggests that rural electrification and supply programme can rarely be self-supporting and even developed countries such as the USA provide subsidies to certain sections of consumers. We recommend that GoN decide about subsidy policy as a part of the sector reform.

In the mid-to-long term, GoN may also consider creating a “power development and subsidisation fund” with contribution from government, utilities, and some categories of consumer with paying capacity. All subsidies and rural power development works may be funded out of this fund.

7. STU AND FINANCIAL RESTRUCTURING PLAN

7.1 Role and Functions of the STU

177. It is stipulated in the statement of object and reasons of the Electricity Act 2003 that there should be a transmission utility at the central and the state level, which must be a government owned company and have the responsibility of ensuring that the transmission network is developed in a planned and co-coordinated manner to meet the requirements of the power sector. The load dispatch function could be kept with the transmission utility or separated. In the case of separation, the load dispatch function would have to remain with a state government organization/company. Section 39(1) of the Act further stipulates that the state may notify the Board or a government company as the State Transmission Utility (STU).

178. Since Nagaland does not have a State Electricity Board, a separate government company has to be created under the Companies Act, 1956 and notified as STU. Under Section 14, the STU shall operate as a deemed transmission licensee. The STU shall be fully in charge of the transmission for the entire state of Nagaland till at some point of time in future any other agency is granted transmission licence for specified area.

179. The STU is primarily responsible for planning and development of the intra-state transmission system. It has several statutory functions as laid down in Section 39(2) of the Act. Besides, the STU shall be in charge of the State Load Despatch Centre set up under Section 31 of the Electricity Act, 2003. Since the 132 KV sub-station at Dimapur has already been notified as SLDC, the STU would operate it.

180. The Act prohibits transmission entity to engage in any other activity such as generation, distribution and trading. The basic purpose is that the transmission and despatch function must be isolated and ring fenced as a separate entity so as to allow non-discriminatory open access. The Act mandates non-discriminatory open access in transmission from the very beginning.

181. As stipulated in Section 39(2), the functions of the STU shall be: (a) undertake transmission of electricity through intra-state transmission system; (b) discharge all functions of planning and co-ordination relating to intra-state transmission with all concerned agencies (such as Central Transmission Utility; State Government; generating companies; Regional Power Committees; Central Electricity Authority; licensees; and any other persons notified by the state government in this behalf); (c) ensure development of an efficient, coordinated and economical system of intra-state transmission lines for smooth flow of electricity to the load centres; and (d) provide non-discriminatory open access to its transmission system in accordance with the provisions of the Act and directions of the Regulatory Commission.

182. In line with the above functions, the main activities of the STU shall be: (a) transmission of electricity within the state; (b) maintain, control and supervise the transmission system; (c) system planning; (d) coordination with Central Transmission Utility; (e) regional interface in transmission; (f) compliance with grid standards and state grid code; (g) operation of SLDC; and (h) provide non-discriminatory open access.

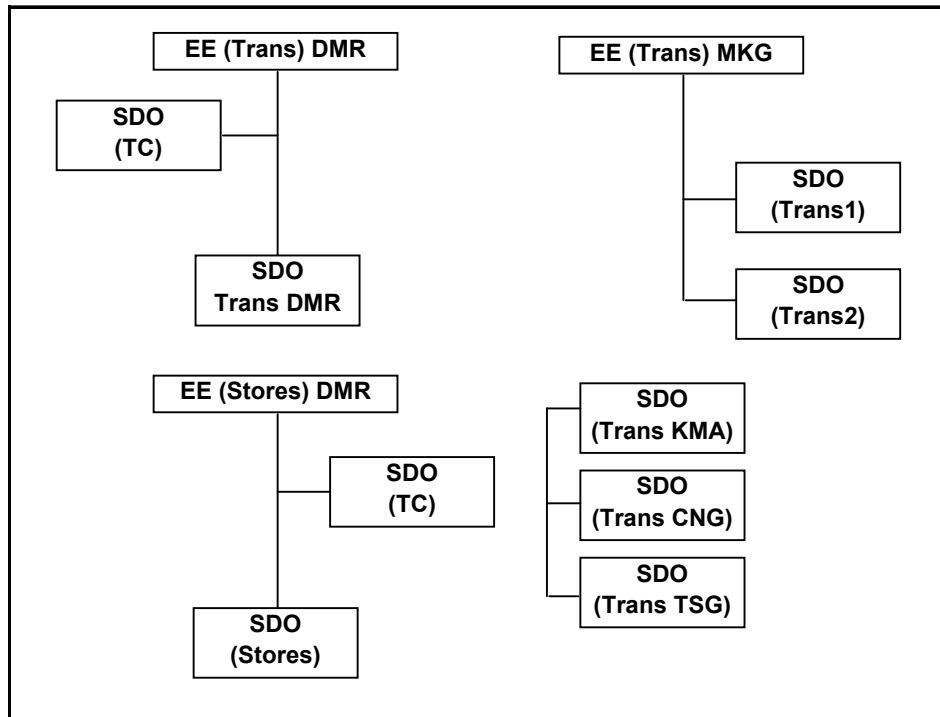
183. As operator of SLDC, the STU shall be responsible for optimum scheduling and despatch of electricity within the state in accordance with the contracts entered into with the distribution/trading licensees or the generating companies operating in the state. In

addition, the STU shall: (a) monitor grid operations; (b) keep accounts of the quantity of electricity transmitted through the state grid; (c) exercise supervision and control over the intra-state transmission system; and (d) carry out real time operations for grid control and despatch of electricity within the state. All these functions of SLDC are being laid down under Section 32. It is further stipulated under Section 33(3) that the SLDC must comply with the directions of the Regional Load Despatch Centre.

7.2 Existing Structure of Transmission Divisions

184. At present, SLDC and Transmission Division at Dimapur and the Transmission Division at Mokokchung are exclusively engaged in intra-state transmission of electricity in the state (*Figure 7.1*). Under the existing structure, two Executive Engineers (EE) are entrusted with the responsibility of transmission and they report to the circle Superintending Engineer (SE). The two EEs are presently assisted for transmission work by 4 SDOs, 10 AEs and 4 JEs. In addition, three SDOs one each at Kohima, Changtongia and Tuensang look after their respective transmission lines/sub-stations.

Figure 7.1: Transmission Divisions



185. It is quite evident that the existing structure is not adequate to be developed into a full-fledged STU. Besides, the structure of STU needs to be designed in such a way that it can discharge the role and functions of a state transmission utility as stipulated under the Electricity Act 2003.

186. A task force was set up by DoP to help the consultants examine several design issues and develop an organisation structure for the STU. Our recommendations are based on the deliberations of the task force, which are outlined as follows.

7.3 Recommendations

Procedure for Establishment of STU

187. In the First Draft Report, we listed the steps to be followed in establishment of the STU. We reiterate them here for ready reference.

The following steps are to be taken for establishment of the STU:

(a) The STU, which may be named as Nagaland Power Transmission Corporation Limited (NPTCL), has to be incorporated under the Companies Act, 1956 with a share capital as would be determined by GoN (Annex 7.1).

(b) The STU must be notified under Section 39 as the STU for Nagaland (Annex 7.2).

(c) The transmission assets and liabilities will have to be identified, segregated, valued and vested in the new company under a Transfer Scheme (discussed later).

(d) Number of personnel required for transmission/SLDC has to be determined rank wise and the select/identified personnel have to be transferred to the new company initially on deputation and they may be absorbed later once the service conditions, pension liability, etc. are settled.

Proposed Structure of the STU

188. As mentioned earlier, structure of the STU is proposed in consultation with the task force set up by DoP (Figure 7.2).

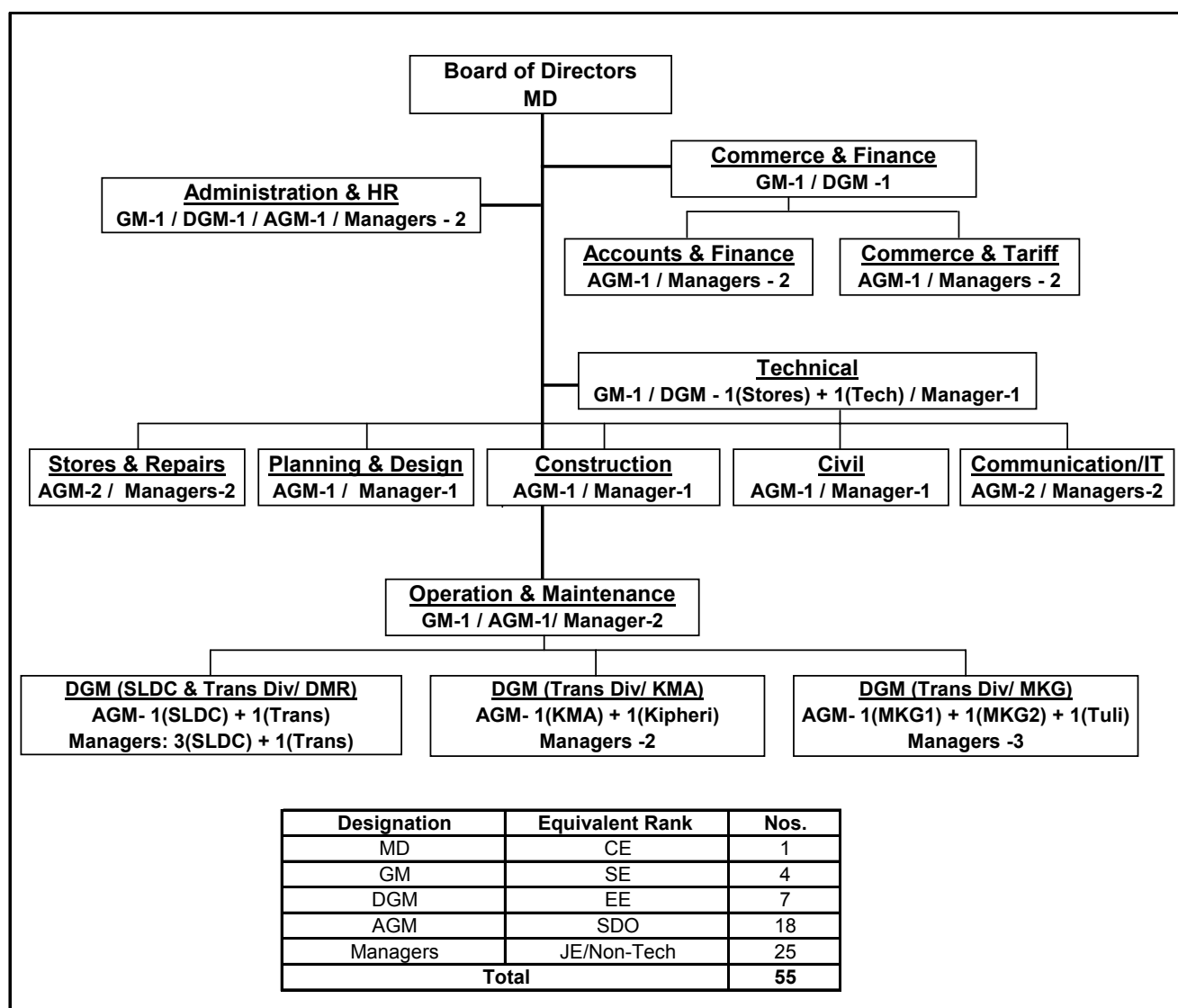
The Head Quarter (HQ) of the STU is proposed to be set up at Dimapur since SLDC is located there. Dimapur is also a suitable centre for dealing with power supply agencies. Apart from the existing SLDC and the two transmission divisions (at Dimapur and Mokokchung), it is recommended that a new transmission division be set up at Kohima.

An engineer in the rank of Chief Engineer may be appointed as the Managing Director (MD) of the STU (Figure 7.2). We also propose appointment of four General Managers. The GM-Technical would be in charge of activities related to stores and repair works, planning and design, construction, civil works, communication and IT services. The GM-O & M would be responsible for operation and maintenance of transmission systems in the state. In addition, we recommend creation of two more GM posts, namely GM-Admn & HR and GM-Commerce & Finance; both the GMs should have adequate experience of handling administration, personnel and finance.

The GM post may be equivalent to the rank of a SE. Similarly, DGM post may be equivalent to the rank of an Executive Engineer. It is further recommended that SDO post be re-designated as AGM.

Keeping above in view, the total deployment of manpower at the managerial level would be 55 numbers of personnel: one MD; four GMs; seven DGMs; eighteen AGMs and twenty five Managers. The number of other staffs (accountant, cashier, UDA, LDA, typist, peon, O & M field staff, jugalies, mazdoor, helper and chowkidar) must be kept at the bare minimum level.

Figure 7.2: Recommended Organisation Structure of the STU



Valuation of Assets

189. An important step in the incorporation of the STU is to identify, segregate, and value assets and liabilities of the transmission business.

It is proposed that transmission system be defined as the system consisting of high voltage electric lines having design voltage of 66 KV or higher along with grid substations of various capacities and all associated and related apparatus and equipments. The historical cost of acquiring such transmission assets is estimated to be Rs.145 crores (Table 7.1). We further guess that the original cost of other related assets and facilities (buildings, stores, etc.) would be around Rs.20 crores. Making allowance for depreciation, book value of the assets associated with the transmission system is estimated to be about Rs.105 crores (Table 7.2).

Table 7.1: Historical Cost of Transmission Assets

Sl. No.	Transmission Assets	Division	Length Km	Cost Rs. Crores	Rate Rs. Lacs/Km
Transmission Line					
1	132 KV S/C Mokokchung-Longtho	MKG (Trans)	33.0	2.25	6.82
2	132 KV S/C Kohima-Wokha	MKG (Trans)	55.1	5.05	9.17
3	132 KV S/C Wokha-DHEP	MKG (Trans)	22.5	1.33	5.92
4	132 KV S/C Mokokchung-Sungro	MKG (Trans)	16.6	4.41	26.56
5	132 KV S/C Sungro-DHEP	MKG (Trans)	13.5	2.38	17.65
6	132 KV S/C Kohima-Meluri	LKM (Elec)	74.0	10.64	14.38
7	132 KV S/C Meluri-Kipheri	LKM (Elec)	43.0	2.39	5.55
8	132 KV Dimapur-Kohima-Mao				
	Sub-Total (132 KV T/L)		257.7	28.45	11.04
9	66 KV S/C Mokokchung-Tuli	MKG (Trans)	56.4	2.00	3.54
10	66 KV S/C Tuli-Naginimora	MKG (Trans)	34.2	5.01	14.64
11	66 KV S/C Naginimora-Tizit	MKG (Trans)	44.4	4.76	10.72
12	66 KV S/C Mokokchung-Zunheboto	MKG (Trans)	42.2	5.85	13.86
13	66 KV D/C Kipheri-Likimro	LKM (Elec)	34.0	1.34	3.94
14	66 KV S/C Kipheri-Tuensang-Mokokchung	MKG (Trans)	109.2	5.26	4.82
15	66 KV D/C Nagarjan-Singrijan	DMR (Trans)	5.4	1.61	29.89
16	66 KV S/C Singrijan-Ganeshnagar	DMR (Trans)	21.4	4.30	20.09
17	66 KV S/C Purana Bazar-Nitofarm	DMR (Elec)	10.7	2.14	20.09
18	66 KV S/C Singrijan-Chumukedima	DMR (Trans)	7.9	1.59	20.09
19	66 KV S/C Bokajan Taping Point-Purana Bazar	DMR (Elec)	2.9	0.58	20.09
	Sub-Total (66 KV T/L)		368.65	34.44	9.34
	Total - Transmission Lines		626.39	62.90	10.04
Sub-Stations					
1	7.5 MVA 66/33 KV Tuli	MKG (Trans)		1.04	
2	5 MVA 66/33 KV Tuensang	MKG (Trans)		1.04	
3	10 MVA 132/66 KV, 7.5 MVA 66/33 KV Aolichen	MKG (Trans)		1.97	
4	19.5 MVA 132/66 KV Kipheri	LKM (Elec)		1.25	
5	5 MVA 66/33 KV Niginimora	MKG (Trans)		4.36	
6	5 MVA 66/33 KV Tizit	MKG (Trans)		2.84	
7	5 MVA 132/66 KV Wokha	MKG (Trans)		3.72	
8	3 MVA 66/33 KV Zunheboto	MKG (Trans)		2.43	
9	Extension of Aolichen S/S	MKG (Trans)		6.06	
10	Extension of Tuli S/S	MKG (Trans)		0.75	
11	132/33 KV S/S Meluri	LKM (Elec)		2.39	
12	132/33 KV S/S Kohima	KMA (Elec)		5.44	
13	132/66/33 KV S/S Dimapur	DMR (Trans)		10.78	
14	66 KV S/S Chumukedima	DMR (Elec)		7.75	
15	66 KV S/S Nitofarm	DMR (Elec)		7.13	
16	66 KV S/S Ganeshnagar	DMR (Trans)		7.75	
17	66 KV S/S Poer House	DMR (Elec)		7.75	
18	66 KV S/S Purana Bazar	DMR (Elec)		7.45	
	Total - Sub-Stations			81.90	
	Total Transmission System			144.80	

Table 7.2: Estimated Book Value of Assets

Gross Block (Rs. Crores) ¹	Age (Years)	Rate of Depreciation (%)	Written Down Value (Rs. Crores)
<i>Transmission Assets</i>			
48.33	5	3.3	40.36
48.33	10	3.3	32.38
48.33	15	3.3	24.41
Sub-Total			97.15
<i>Other Assets</i>			
7	5	10	4.13
7	10	10	2.44
7	15	10	1.44
Sub-Total			8.01
Total			105.16 (say 105)
<p>1. It is assumed that one-third of the gross block is 15 years old (most of the transmission facilities have come after mid-nineties), another one-third 10 years old, and the balance assets have an age of 5 years.</p> <p>2. Transmission and related assets are assumed to have a life period of 30 years and accordingly depreciated at 3.3% on a straight line basis.</p>			

190. Assets value has a serious implication for tariff fixation. Recognising this aspect, Section 131(2) of the Electricity Act, 2003 states that the valuation of assets shall be determined, as far as possible, based on the revenue potential and at such terms and conditions as may be agreed upon between the state government and the STU.

We do not suggest any upward revaluation of assets as it would result in higher transmission tariff (due to increased depreciation), which in turn would push up electricity price to end-consumers and jeopardise the financial viability of the entire sector. Rather, we recommend that transmission assets be vested in the STU at the estimated book value of Rs.105 crores, which corresponds to maximum revenue that the new company could earn without jeopardising the financial viability of the generating/distribution company.

Transmission Tariff

191. Given the estimated transfer value of assets (Rs.105 crores), it is pertinent to estimate the transmission tariff. Our calculation suggests that at the present level of intra-state transmission of electricity (301 MU during 2004-05), the transmission tariff is estimated to be 24 paise per unit (Table 7.3). This tariff includes: (a) O & M charge of 5.2 paise per unit (estimated @ 1.5 percent of the assets value); (b) employee cost of 5.0 paise per unit (based on our estimated salary and wages for STU of Rs.1.5 crores per annum); (c) depreciation of 11.5 paise per unit (estimated @ 3.3 percent of the assets value); and (d) 2.2 paise per unit as margin, which works out to be 10 percent of the transmission tariff.

192. The need for providing margin in transmission tariff has been well recognised in the draft National Electricity Policy (dated 30.6.2004). it is observed:

“To facilitate introduction of open access and development of power market and also for secure and reliable operation of the grid, adequate margins in transmission system should be created.”

Table 7.3: Transmission Tariff

	Assets Value of: Rs. 105 crores Energy Input: 301 MU (2004-05)
	Tariff (Paise per unit)
O & M Expense (1.5%)	5.2
Employee Cost (Rs. 1.5 crores)	5.0
Depreciation (3.3%)	11.5
Margin (10%)	2.2
Total	24 (Rs.172.80/kw/month)

It is recommended that the initial transmission tariff be set at 24 paise per unit, or Rs.172.80 per KW per month, plus energy losses in kind as may be determined by the SLDC and approved by the State Electricity Regulatory Commission (Table 7.3). As will be evident from the proposed financial restructuring plan of the generation and distribution company (discussed later), this is the maximum tariff that the sector can bear albeit with other restructuring measures.

It may further be noted that the proposed transmission tariff is not on the lower side as compared to the prevalent tariffs in other states. For instance, in Andhra Pradesh the current transmission charges is 11.76 paise per unit or Rs.84.65 per kw per month, which is just half of the tariff recommended for Nagaland STU.

Financial Restructuring Plan (FRP) and Projections

193. The financial restructuring plan for the STU is sliced out of an integrated FRP for the power sector in Nagaland.

The key assumptions underlying the FRP are as follows:

- (a) 10,500 equity shares of Rs.1000 each will be issued to GoN as a consideration and full adjustment for aggregate value of transfer of the assets, liabilities and proceedings to the STU.*
- (b) Liabilities on account of outstanding loans and accrued interest will be borne by GoN and not to be transferred to the new entity.*
- (c) GoN would provide upfront one-time cash grant of Rs.5 crores for creating a Pension Fund Trust.*
- (d) GoN would further provide Rs.7 crores as upfront one-time working capital grant.*
- (e) The generating/distribution company would provide a security deposit equivalent to one-month billed revenue through an escrow account.*
- (f) Capital expenditure during the projection period will be financed through internal generation of funds.*

194. As evident from above, GoN would be required to provide cash grant of Rs.12 crores (Rs.5 crores for creating Pension Fund Trust and Rs.7 crores for working capital) to the STU. Funding support in terms of equity capital (Rs.105 crores) would be merely a book adjustment and it would not affect the fiscal position of the state government.

195. The purpose of not taking the liabilities of servicing outstanding loan on the balance sheet of the STU is to lessen the burden of cash outflows as well as to lower transmission tariff.

196. GoN also needs to commit funds to meet the liability of pension benefits of the employees to be transferred to the STU as part of the transfer scheme (discussed later). Logically speaking, the said financial liability must be apportioned between the state government and the STU based on the length of service rendered by the respective personnel in each of the two organisations. However, this is not recommended.

For protecting employee interest under the new corporate structure, we recommend that the state government meet the entire liability of pension benefits of the employees to be transferred to the STU and make an upfront lump sum one-time payment for creating a Pension Fund Trust (PFT).

At present, pension is un-funded liability of the state government. The establishment of a Pension Fund Trust would create a corpus as well as provide for professional funds management with systematic return from investment. The Trust would also ensure timely release of pension amount to the employees.

The pension amount is estimated based on the available manpower data regarding pay-scale, date of joining, date of retirement, etc. The corpus amount of the PFT is ascertained assuming that the average yield from investment of fund would be 6 percent per annum.

197. The financial projections are made for a period of ten years (2006-07 to 2015-16) taking into account the proposed transmission tariff and the FRP. We have simulated several scenarios and the most feasible one is considered here.

The key assumptions underlying the financial projections are as follows:

- (a) Power demand will grow at 10 percent per annum until 2009-10 and thereafter at a rate of 6.75 percent. Thus, overall CAGR is assumed to be 8 percent per year.*
- (b) Initial transmission charge will be 24 paise per unit and the tariff will increase by 10 percent in every alternative year.*
- (c) Collection efficiency will be 90 percent and there will not be any bad debts.*
- (d) Salaries and wages are estimated to be Rs.1.5 crores and assumed to escalate at 2.5 percent per year.*
- (e) Initial O & M expenses are estimated to be 5.20 paise per unit and assumed to escalate at 3.3 percent (which is the assumed rate of depreciation) per year.*
- (f) Depreciation will be provided at 3.3 percent per annum.*
- (g) Current tax rate (including surcharge) of 33.66 percent will continue.*
- (h) GoN would not provide budgetary support once the new transmission company become fully operational. Until then the state government must provide budget (both revenue and capital budget) support to the STU.*

198. The validity of financial projections depends on the reasonableness of the underlying assumptions. It is imperative, therefore, that DoP examine the assumptions and other details of our calculations and accordingly modify the projections (Annex 7.3).

199. As far as the projected financial position (Balance Sheet) and results (Profit and Loss Account) are concerned, they are challenging but achievable.

The projections over the ten-year period reveal the following (Tables 7.4 to 7.6 and Annex 7.3):

- (a) Internal generation of funds will provide for capital expenditure to the tune of Rs.90 crores spread over the projection period.*
- (b) One-time GoN grant (Rs.5 crores) for Pension Fund Trust will be adequate to discharge the estimated pension liabilities.*
- (c) The O & M stock will go up from Rs.0.47 crore to Rs.1.25 crores by the end of the projection period.*
- (d) One-time GoN grant for working capital will be adequate for meeting working capital gap (i.e., net current assets).*
- (e) Year-end cash and bank balance will not fall below Rs.2 crores during the projection period.*
- (f) There will be adequate budget provision for O & M expenditure.*
- (g) Profit after tax will steadily go up from Rs.1.14 crores to Rs.9.36 crores by the end of the projection period.*
- (h) Thirty percent of the profit will be distributed to GoN by way of dividend from 8th year onwards. With dividend receipts, GoN would recover Rs.7.4 crores, or 62 percent, of the initial cash grant of Rs. 12 crores provided to the STU.*
- (i) Over a period of 10 years, the STU will become an Rs.160 crores company.*

Transfer Scheme

200. DoP may consider the draft Transfer Scheme and Order presented in this report (Annex 7.4). A significant aspect of the draft scheme is that it ensures protection of the existing employees (as per Sec. 133 of the Electricity Act, 2003) to be transferred to the STU against any adverse service conditions under the new set up.

The important employee-protection measures are as follows (Annex 7.4):

- (a) There shall not be retrenchment of the employees to be transferred on account being declared surplus in the new entity.*
- (b) Pension and other retirement benefits of the employees to be transferred shall be fully protected.*
- (c) A Pension Fund Trust shall be created with one-time grant by GoN for meeting liabilities under (c) above.*
- (d) The period of service of the employees to be transferred shall be treated as continuous service.*

201. It may further be noted that all transfers (assets, liabilities, proceedings and personnel) and vesting specified in the transfer scheme shall be provisional and shall be made final upon the expiry of 12 months from the effective date of implementation.

Table 7.4: Projected Balance Sheet of the STU

<i>(Rs. crores)</i>	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Assets										
Gross Block	110.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0	185.0	195.0
Depreciation	(3.6)	(7.4)	(11.6)	(16.0)	(20.8)	(25.9)	(31.4)	(37.2)	(43.3)	(49.7)
Net Fixed Assets	106.4	107.6	113.4	119.0	124.2	129.1	133.6	137.8	141.7	145.3
Stock	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.2
Debtors	0.8	1.0	1.1	1.3	1.5	1.6	1.9	2.0	2.4	2.5
Cash & Bank	6.2	7.3	4.7	2.4	2.2	2.3	4.7	5.4	8.3	11.5
Loans & Advances	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Current Assets	8.0	9.3	6.9	4.9	5.0	5.2	8.0	8.9	12.3	15.7
Current Lib./ Prov	(1.3)	(1.8)	(2.4)	(2.7)	(3.5)	(3.8)	(4.8)	(5.1)	(6.3)	(6.8)
Net Current Assets	6.7	7.5	4.5	2.2	1.5	1.4	3.2	3.8	6.0	8.9
Investment (Pension)	4.9	5.0	5.2	5.3	5.4	5.5	5.5	5.5	5.5	5.4
Total	118.0	120.1	123.1	126.5	131.1	136.0	142.3	147.1	153.2	159.6
Financed by										
Share Capital	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0	105.0
Reserves & Surplus	1.1	3.1	5.9	9.2	13.6	18.5	24.8	29.6	35.7	42.2
Working Capital Grant	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Grant for PFT	4.9	5.0	5.2	5.3	5.4	5.5	5.5	5.5	5.5	5.4
Total	118.0	120.1	123.1	126.5	131.0	136.0	142.3	147.1	153.2	159.6

Table 7.5: Projected Profit and Loss Account of the STU

<i>(Rs. crores)</i>	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Transmission (MU)	364	400	440	484	517	552	589	629	671	716
Tariff (Rs./unit)	0.24	0.24	0.26	0.26	0.29	0.29	0.32	0.32	0.35	0.35
O & M Exp (paise/unit)	5.20	5.37	5.55	5.73	5.92	6.12	6.32	6.53	6.75	6.97
Income										
Revenue Billed	8.7	9.6	11.4	12.6	15.0	16.0	18.8	20.1	23.5	25.1
Collection of Arrears		0.9	1.0	1.1	1.2	1.5	1.6	1.9	2.0	2.3
Total	8.7	10.5	12.4	13.7	16.2	17.5	20.4	22.0	25.5	27.4
Expenditure										
Salaries and Wages	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.9
Pension	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4
Transfer from PFT	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.4)
O & M Expenses	1.9	2.1	2.4	2.8	3.1	3.4	3.7	4.1	4.5	5.0
Total	3.4	3.6	4.0	4.4	4.7	5.1	5.4	5.9	6.3	6.9
EBITDA	5.3	6.8	8.4	9.3	11.5	12.4	15.0	16.1	19.2	20.5

Table 7.5: (Contd.)

<i>(Rs. crores)</i>	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Depreciation	3.6	3.8	4.1	4.4	4.8	5.1	5.5	5.8	6.1	6.4
Interest										
Profit Before Tax	1.7	3.0	4.3	4.9	6.7	7.3	9.5	10.3	13.1	14.1
Provision for Taxation	0.6	1.0	1.5	1.6	2.3	2.4	3.2	3.5	4.4	4.8
Profit After Tax	1.1	2.0	2.8	3.3	4.4	4.9	6.3	6.8	8.7	9.3
Balance B/F	0.0	1.1	3.1	5.9	9.2	13.6	18.5	24.8	29.6	35.7
Dividend to GoN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.6	2.8
Balance C/F to B/S	1.1	3.1	5.9	9.2	13.6	18.5	24.8	29.6	35.7	42.2

Table 7.6: Funds/Cash Flows to GoN

<i>(Rs. crores)</i>	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Book Adjustment										
Share Capital	105.0									
Cash Flows										
Opening Balance	0.0	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(10.0)	(7.4)
Contribution to PFT	(5.0)									
Working Capital Grant	(7.0)									
Total Cash Outflow	(12.0)									
Dividend Receipt	0.0							2.0	2.6	2.8
Closing Balance	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(12.0)	(10.0)	(7.4)	(4.6)

8. NPDSCL AND FINANCIAL RESTRUCTURING PLAN

8.1 Power Development and Supply Corporation

Organisation Structure

202. It has already been recommended that GoN follow functional unbundling and establish a corporate entity (in addition to STU), which may be named as Nagaland Power Development and Supply Corporation Limited (NPDSCL), for generation, distribution and trading of electricity. Like STU, this new entity has to be incorporated under the Companies Act, 1956 as wholly owned government companies. It is appropriate to mention here that functional unbundling is a pre-requisite for enforcing accountability, financial discipline and commercial orientation.

203. Turning to the existing structure of DoP, the current employee strength is over four thousand, half of which consists of regular employees and the rest are work-charge staffs. In spite of the significant growth in departmental activities over the decades, there has been no further strengthening of manpower since 1986 when four new electrical divisions were created at Zunheboto, Wokha, Phek and Mon. In December 2002, a Cadre Review Committee was constituted, which proposed restructuring of DoP with strengthening of staff.

It is recommended that DoP adapt the organisation structure proposed by the Cadre Review Committee (CRC) after giving due considerations to the fact that the transmission business and some odd 50-60 officers will be shifted to the STU.

We further recommend that NPDSCL be internally structured into two separate strategic business units (SBUs) - one for generation of power (hydro/thermal) and another for distribution and trading of electricity.

The CEO of generation SBU would be responsible for operation and maintenance of existing plants, and for setting up new power plants. To begin with, performance of this SBU would be evaluated as a "cost centre" based on its "business plan and financial budget". At a later stage, generation SBU may be treated as a profit centre with the assessment of revenue using suitable transfer pricing mechanism.

The CEO of distribution SBU would be responsible for supply of electricity in the two revenue circles (Dimapur and Mokokchung circles). Each circle will be a profit centre headed by a GM. Furthermore, each electrical (revenue) divisions will be treated as a sub-profit centre headed by a DGM.

For further strengthening of distribution management at micro-level, the structure of managerial accountability must be extended up to the feeder/transformer level. It is proposed that JEs (Managers) be made responsible for supply of electricity based on allotted feeders/transformers (Chap.6, Figure 6.2).

DoP may set up an internal Committee, including representatives from the Unions and Associations, for adapting the organisation structure proposed by the CRC in the light of the above recommendations.

Some Issues

204. *Career stagnation:* At present, the officers and staff are somewhat demoralised due to career stagnation and lack of immediate promotion avenues. There are many JEs (Electrical), who have been serving at the same post for more than 28 years. Similarly, SDOs (Electrical) and EEs (Electrical) are continuing in the same rank over 15 to 18 years. Given the slow progress in capacity addition for power generation, the civil engineers are also faced with limited promotional avenue.

In the long-run, capacity addition would create more promotion avenues for the engineers/officers. But, in the short term, DoP may consider providing opportunities for lateral promotion in various managerial posts (in areas like business planning & control; public relations; tariff & commercial matters; human resource management; training & development; finance; e-governance; etc.) that would be created with the establishment of the STU and power development and supply corporation. Of course, the engineers/officers will have to undergo training programmes for enhancing managerial competence.

For expanding the scope of work for the civil wing, repairs and maintenance of the civil constructions may be entrusted with them. At present, this is not happening because the departmental budget has no provision for civil repairs and maintenance works. However, fund allocation will not be a problem in the new entities.

205. *Problems of work-charge staff:* DoP is facing acute shortage of work-charge (W/C) staffs who are essentially the field staffs and execute various odd works such as service connection, construction works (including 33 KV lines and sub-stations), and operation and maintenance of assets. DoP has been unable to recruit field staff due to blanket ban on fresh appointment since 1994. Today many villages are looked after by only one field staff, and during his unavoidable absence the power failure remains unattended. Several villages do not have even dedicated field staff and one staff looks after more than one village. Besides, many of the field staffs have grown too old to be fit for O & M activities.

206. There is one more problem; W/C staff hardly gets monthly wages in time. The payment is made in lump sum after several months. Such working conditions act as deterrent to productivity of the work force.

It is recommended that GoN allow fresh recruitment of work-charge staff and ensure timely payment of monthly wages. Besides, given the nature of works that the work-charge staffs perform, it is desirable that they are re-designated as O&M staffs. There is now a legitimate move by DoP to absorb W/C staffs, who have been working for many years, as permanent employees. This needs be approved by GoN.

207. *Lack of manpower for running hydro units:* It has been brought to the notice of the study team that hydro units like Telangsao (600 KW) could not be made operational due to lack of required manpower. Although provision of manpower is being made in the feasibility report, GoN has not yet approved actual recruitment of manpower.

Non-operational hydro unit means loss of revenue and it is recommended that GoN allow recruitment of manpower for commercial commissioning of such units. In the interim period, engineers who are temporarily off from the non operational Likimro project may be deputed for running the units.

Performance Management of Revenue Divisions (Profit Centres)

208. We have already recommended that each electrical division must function as a sub-profit centre. We therefore need to develop indicators for performance management.

DoP may consider the Key Performance Indicators (KPI) developed in this report for performance evaluation of each electrical division, i.e., profit centre (Table 8.1). The KPI includes both financial and non-financial parameters under nine broad heads: (1) energy input, sales and AT&C loss; (2) rural and urban SPM sales and collection; (3) progress in metering; (4) power supply conditions; (5) consumer charter/services; (6) financial performance; (7) debtors position; (8) stock position; and (9) capital expenditure.

Table 8.1: KPI for Revenue Division

Division:	Month:	Year:	This month		Year-to-Date	
Key Performance Indicators			Target / Standard	Actual	Target / Standard	Actual
<i>1. Energy Input, Sales & AT&C Loss</i>						
1.1	Energy input in MU					
1.2	HT sales – <i>metered</i> in MU					
1.3	HT sales – <i>assessed</i> in MU					
1.4	Total HT sales billed in MU [(1.2) + (1.3)]					
1.5	LT sales – <i>metered</i> in MU					
1.6	LT sales – <i>assessed</i> in MU					
1.7	Total LT sales billed in MU [(1.5) + (1.6)]					
1.8	Total sales billed in MU [(1.4) + (1.7)]					
1.9	% share of <i>assessed</i> sales $\frac{[(1.3) + (1.6)]}{(1.8)} \times 100$					
1.10	Billed-to-input ratio in % $\frac{[(1.8) \div (1.1)]}{(1.1)} \times 100$					
1.11	T & D loss in MU [(1.1) – (1.8)]					
1.12	T & D loss in % $\frac{[(1.11) \div (1.1)]}{(1.1)} \times 100$					
1.13	Revenue billed in Rs. million					
1.14	Collection against current billing in Rs. million					
1.15	Collection efficiency in % $\frac{[(1.14) \div (1.13)]}{(1.13)} \times 100$					
1.16	AT&C loss in % $[1 - \frac{(1.10)}{(1.10)}] \times \frac{(1.15)}{(1.15)} \times 100$					
1.17	No. of theft cases detected					
1.18	No. of theft cases prosecuted					
1.19	Recovery from theft cases in Rs. million					
1.20	Incentive payment to employees on theft recovery in Rs. million					
<i>2. Rural & Urban SPM Sales & Collection</i>						
2.1	No. of new villages under SPM					
2.2	No. of new urban centres under SPM					
2.3	Total no. of new SPM connections					
2.4	Total billed sales in villages in MU					
2.5	Total billed sales in urban centres in MU					
2.6	Total billed sales in MU [(2.4) + (2.5)]					
2.7	Total billed sales in villages in Rs. million					
2.8	Total billed sales in urban centres in Rs. million					
2.9	Total billed sales in Rs. million [(2.7) + (2.8)]					
2.10	Collection against current billing in Rs. million					
2.11	Collection efficiency in % $\frac{[(2.10) \div (2.9)]}{(2.9)} \times 100$					

Division:	Month:	Year:	This month		Year-to-Date	
Key Performance Indicators			Target / Standard	Actual	Target / Standard	
<u>3. Progress in Metering</u>						
3.1	No. of new DT meters installed					
3.2	No. of defective DT meters replaced					
3.3	Total no. of installation of DT meters [(3.1) + (3.2)]					
3.4	No. of new 11 KV meters installed					
3.5	No. of defective 11 KV meters replaced					
3.6	Total no. of installation of 11 KV meters [(3.4) + (3.5)]					
3.7	No. of new consumer meters installed in rural areas					
3.8	No. of defective consumer meters replaced in rural areas					
3.9	Total no. of cons. meters in rural areas [(3.7) + (3.8)]					
3.10	No. of new consumer meters installed in towns/cities					
3.11	No. of defective consumer meters replaced in towns/cities					
3.12	Total no. of cons. meters in towns/cities [(3.10) + (3.11)]					
<u>4. Power Supply Conditions</u>						
4.1	Av. time in days for providing supply to new premises (Type I)*					
4.2	Av. time in days for providing supply to new premises (Type II)*					
4.3	Av. time in days for reconnection on settlement of dues					
4.4	DTR failure rate in %					
4.5	Av. restoration time in hrs. for DT failure in rural areas					
4.6	Av. restoration time in hrs. for DT failure in towns/cities					
4.7	No. of 33 KV interruptions					
4.8	Average duration in hrs. of 33 KV interruptions					
4.9	No. of 11 KV interruptions					
4.10	Average duration in hrs. of 11 KV interruptions					
4.11	Av. restoration time in hrs. for line breakdowns in rural areas					
4.12	Av. restoration time in hrs. for line breakdowns in towns/cities					
4.13	Av. restoration time in hrs. for normal fuse off in rural areas					
4.14	Av. restoration time in hrs. for normal fuse off in towns/cities					
4.15	Av. restoration time in hrs. for burnt meters in rural areas					
4.16	Av. restoration time in hrs. for burnt meters towns/cities					
4.17	Av. Scheduled outage in hrs. per day					
<p>* Type I: Premises requiring extension/augmentation of distribution mains; Type II: Other premises ** Following types of interruption shall not be taken into account: (i) scheduled outage; (ii) momentary outage of a duration of less than 3 minutes; (iii) outage due to failure of grid; (iv) outage due to reasons beyond control, e.g., floods, cyclone, storms.</p>						
<u>5. Consumer Charter/Services</u>						
5.1	No. of consumer service centres in area of supply					
5.2	Average service hours per day of the service centres					
5.3	Average working days per week					
5.4	No. of o/s consumer complaints related to meters					
5.5	No. of consumer complaints related to meters being settled					
5.6	No. of o/s consumer complaints related to billing					
5.7	No. of consumer complaints related to billing being settled					
5.8	Av. time taken in days for a service from date of application*					
5.9	No. of consumers communication programmes held**					
5.10	No. of consumers attended such programmes (attach feedback)					
5.11	No. of press release regarding matters of consumer interest***					
<p>* Requested services may include: (i) change in name; (ii) Change of tariff category; (iii) reduction in contract demand/sanctioned load; (iv) closure of accounts; etc. ** The consumer communication programmes may include workshop/seminars/road show/radio talk/etc. and cover such topics as: (i) consumer rights and obligations under the Electricity Act 2003; (ii) combined action</p>						

plan for curbing theft and pilferage of power; (iii) tips for energy savings; (iv) understanding tariff structure, cross-subsidies, and govt. subsidies; (v) how to estimate consumption bill; (vi) right to information; etc. *** e.g., change in tariff structure; procedures for lodging complaints; new security deposit scheme					
Division:	Month:	Year:	This month		Year-to-Date
Key Performance Indicators			Target / Standard	Actual	Target / Standard
6. Financial Performance (Rs. in million)					
6.1	Revenue from sale of power (1.13)				
6.2	Collection of arrears (7.3)				
6.3	Net recovery from theft cases [(1.19) - (1.20)]				
6.4	Misc. receipts				
6.5	Total revenue receipts [(6.1) + (6.2) + (6.3) + (6.4)]				
6.6	Power cost*				
6.7	Salaries and wages				
6.8	O & M expenses**				
6.9	Provision for bad debts (7.4)				
6.10	Total operating expenditure [(6.6) + (6.7) + (6.8)]				
6.11	EBDIT [(6.5) – (6.9)]				
6.12	Operating profit/loss margin in % [(6.10) ÷ (6.5)] x 100				
* Power cost = Energy input in MU (1.1) x unit cost at intake level. The unit cost will be computed at CEO office of the SBU using the following formula: Unit power cost at intake level = Average purchase price ÷ (1 - transmission loss)					
** O & M expenses include: repairs and maintenance expense; service connection expenses; etc.					
7. Debtors Position (Rs. in million)					
7.1	Opening balance of debtors				
7.2	Debtors against current year sale of power				
7.3	Collection of arrears (6.2)				
7.4	Provision for bad debts (6.9)				
7.5	Closing balance of debtors [(7.1) + (7.2) - (7.3) - (7.4)]				
7.6	Total dues of ten major defaulters in Rs. million (attach list)				
8. Stock Position (Rs. in million)					
8.1	Opening balance of stock				
8.2	Receipts				
8.3	Consumption				
8.4	Closing balance of stock [(8.1) + (8.2) - (8.3)]				
8.5	Value of stocks not consumed for more than one-year				
9. Capital Expenditure (Rs. in million)					
9.1	Capital expenditure in Rs. million (attach list)				
9.2	Capital expenditure as % of sanctioned budget (attach list)				

8.2 Valuation of Assets

209. As we know, a critical step in establishing the new entity is to identify, segregate, and value assets and liabilities to be vested with the entity. In this regard, assets value associated with the generation and distribution business is determined by extrapolation of the audited balance sheet of DoP as at the end of the financial year 2001-02, which happens to be the latest accounts available at the time of preparation of this report, and by taking into account capital expenditure incurred during the period from 2002-03 to 2005-06 (Table 8.2).

Table 8.2: Estimated Value of Assets

(Rs. crores)	Actual	Estimated			
	2001-02	2002-03	2003-04	2004-05	2005-06
Gross Block	266.04	416.04	588.10	649.71	686.21
Capital Expenditure During the Year		73.50	61.61	36.50	35.88
Depreciation	(24.24)	(29.33)	(37.09)	(46.04)	(56.18)
Net Fixed Assets	241.80	460.21	612.62	640.17	665.91
Capital Expenditure in Progress	248.56	98.56			
Transferred to STU					(105.00)
Remaining Book Value of Assets					560.91

The book value of the assets of DoP as at the end of the financial year 2005-06 is estimated to be Rs.665.91 crores, out of which Rs. 105 crores worth transmission assets shall be transferred to STU (Table 8.2).

We recommend that the balance assets amounting to Rs.560.91 be vested in the power development and distribution company (NPDSCL). Upward revaluation of assets is not recommended as it would result in higher end-user tariff due to increased depreciation.

8.3 Recommended FRP and Financial Projections

Financial Restructuring Plan

210. As mentioned in the previous chapter, the financial restructuring plan for the STU has been sliced out of an integrated plan. In this section, we present the remaining part of the financial restructuring plan that pertains to NPDSCL.

The key assumptions underlying the FRP are as follows:

- (a) 5,609,100 equity shares of Rs.1000 each will be issued to GoN as a consideration and full adjustment for aggregate value of transfer of the assets, liabilities and proceedings to the NPDSCL*
- (b) Bonds worth Rs.50 crores will be issued to GoN in tranche of Rs.10 crores per year for the first 5 years. The bonds will carry coupon rate of 6 percent and each tranche will be redeemed at the end of the 8th year from the date of issue. The interest will be reckoned and paid on the balance outstanding at the beginning of the period after an interest exemption period of 8 years.*
- (c) Liabilities on account of outstanding loans and accrued interest will be borne by GoN and not to be transferred to the new entity.*
- (d) GoN would provide upfront one-time revenue subsidy of Rs.87.41 crores to meet the transition period cash losses. The entire amount will be treated as deferred credit and amortised over the transition period.*
- (e) GoN would also provide upfront one-time cash grant of Rs.100 crores for creating a Pension Fund Trust.*

(f) GoN would further provide capital expenditure grant of Rs.101.25 crores spread over the first 5 years. This will part finance the total capital expenditure of Rs.210 crores during the projection period; the rest of the amount will be met through internal generation of funds.

211. As evident from above, GoN would be required to provide cash grant of about Rs.224 crores in the first year of the projection period, and another Rs.115 crores spread over the next 4 years. This is not a big sum if we consider the fact that at present the state incurs a loss about Rs.54 crores (excluding interest) per year and the proposed budget outlay is just equivalent to six-year cumulative losses. Once the financial turnaround of the NPDSCL takes place over a period of six years or so, the government will be able to save on such annual losses for ever.

212. Like in the case of STU, the funding support in terms of equity capital (Rs.560.91 crores) would be merely a book adjustment and it would not affect the fiscal position of the state government. The bond subscription (Rs. 50 crores) is necessary to part finance the capital expenditure over the projection period, which GoN would start recovering from the eighth year onwards.

213. The purpose of not taking the liabilities of servicing outstanding loan on the balance sheet of the STU is to lessen the burden of cash outflows as well as to contain end-user tariffs.

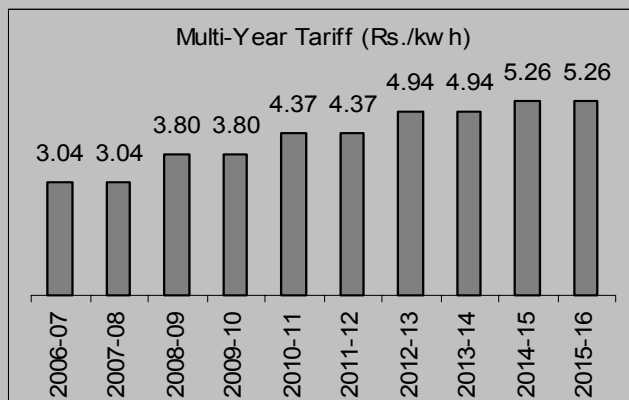
214. As mentioned earlier in respect of the FRP for the STU, GoN also needs to commit funds (Rs.100 crores) to meet the liability of pension benefits of the employees to be transferred to the NPDSCL as part of the transfer scheme. As argued in the case of STU, the establishment of a PFT would create a corpus as well as provide for professional funds management with systematic return from investment. The Trust would also ensure timely release of pension amount to the employees.

Financial Projections

215. The financial projections are made for a period of *ten* years (2006-07 to 2015-16) taking into account the proposed multi-year tariffs and the FRP as discussed above. We have simulated several scenarios and the most feasible one is considered here.

The key assumptions underlying the financial projections are as follows:

- (a) *As assumed earlier, power demand will grow at an overall CAGR of 8 percent.*
- (b) *AT&C loss will be lowered in steps from the estimated level of 52.5 percent in 2005-06 to 18.7 percent by the end of the projection period. This projection presupposes step-wise reduction in T&D loss from 48.7 percent to 15.5 percent, and improvement in revenue collection rate from 82.2 percent to 96.2 percent.*
- (c) *Tariff will grow at a CAGR of 8 percent beginning with the first year rate of Rs.3.04/kwh (see chart below). Assuming an inflation rate of 4-5 percent, the real growth rate works out to be 3 to 4 percent per year.*



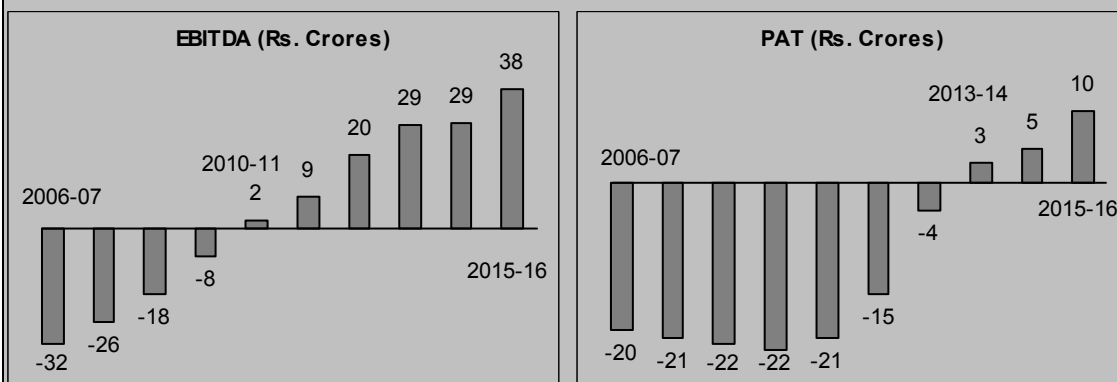
- (d) Power purchase rate is assumed to grow at a CAGR of 4.9 percent per annum.
- (e) Salaries and wages are estimated to be around Rs.20 crores and assumed to escalate at 2.5 percent per year.
- (f) Initial O & M expenses are estimated to be Rs.2.46 crores and assumed to escalate at 10 percent per year.
- (g) Provision for bad debts is provided at 1.5 percent.
- (h) Depreciation will be provided at 3.3 percent per annum.
- (i) Current tax rate (including surcharge) of 33.66 percent will continue.

216. The validity of financial projections depends on the reasonableness of the underlying assumptions. It is imperative, therefore, that DoP examine the assumptions and other details of our calculations and accordingly modify the projections (Annex 8.1).

217. As far as the projected financial position (Balance Sheet) and results (Profit and Loss Account) are concerned, they are challenging but achievable).

The financial projections reveal the following (Tables 8.3 to 8.5 and Annex 8.1):

- (a) The operating profit (EBITDA) will become positive in the 5th year (2010-11), while profit after tax will turn positive in the 8th year (2013-14).



- (b) One-time GoN grant (Rs.100 crores) for Pension Fund Trust will be adequate to discharge the estimated pension liabilities.

- (c) *The budget provision for O & M expenditure will steadily go up from Rs.2.46 crores in the first year to 5.82 crores in the tenth year. Besides, the O & M stock will go up from Rs.0.62 crore to Rs.1.46 crores during the same period.*
- (d) *Year-end cash and bank balance will not fall below Rs.8 crores during the projection period.*
- (e) *Thirty percent of the profit will be distributed to GoN by way of dividend from 9th year onwards.*
- (f) *Over a period of 10 years, the NPDSCL will become an Rs.700 crores company.*

8.4 Transfer Scheme

218. DoP is required to prepare a transfer scheme similar to the draft Transfer Scheme and Order for the STU presented in this report (Annex 7.4).

- Transfer Scheme for NPDSCL, inter alia, should include the following proviso:*
- (a) *There shall not be retrenchment of the employees to be transferred on account being declared surplus in the new entity.*
 - (b) *Pension and other retirement benefits of the employees to be transferred shall be fully protected.*
 - (c) *A Pension Fund Trust shall be created with one-time grant by GoN.*
 - (d) *The period of service of the employees to be transferred shall be treated as continuous service.*
 - (e) *Equity shares shall be issued to GoN as a consideration and full adjustment for aggregate value of transfer of the assets, liabilities and proceedings to the new entity, NPDSCL.*
 - (f) *GoN shall subscribe to bonds to be issued by NPDSCL as stipulated in the FRP and agreed upon and pay in cash.*
 - (g) *GoN shall provide upfront one-time revenue subsidy grant, provided that this grant shall be used only to meet the transition period cash losses and not for any other purpose such as payment of salaries and wages. The entire amount shall be kept in an escrow account and shall be released to NPDSCL on fulfilment of the stipulated conditions, including the achievement of mandated reduction in AT&C losses during the transition period.*
 - (h) *The consumer deposits amount lying in treasury shall be transferred to the account of the new entity.*
 - (i) *The state government shall commit to provide capital expenditure grants as stipulated in the FRP and agreed upon.*
 - (j) *All transfers (assets, liabilities, proceedings and personnel) and vesting specified in the transfer scheme shall be provisional and shall be final upon the expiry of 12 months from the effective date of implementation.*

Table 8.3: Projected Balance Sheet of the NPDSCL

(Rs. crores)	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Assets										
Gross Block	595.91	630.91	655.91	675.91	695.91	710.91	725.91	740.91	755.91	770.91
Depreciation	(19.66)	(40.48)	(62.12)	(84.42)	(107.38)	(130.84)	(154.79)	(179.24)	(204.18)	(229.62)
Net Assets	576.25	590.43	593.79	591.49	588.53	580.07	571.12	561.67	551.73	541.29
Stock	0.62	0.68	0.75	0.82	0.90	0.99	1.09	1.20	1.32	1.46
Debtors	15.96	10.14	12.88	12.66	14.39	14.03	15.18	14.22	13.73	11.91
Cash & Bank Balance	44.76	26.40	9.65	7.50	13.46	7.99	12.66	17.96	23.15	35.61
Loans & Advances	0.49	0.54	0.59	0.65	0.72	0.79	0.87	0.96	1.06	1.17
Current Assets	61.83	37.76	23.87	21.63	29.47	23.80	29.80	34.34	39.26	50.15
Current Liabilities & Provision	4.67	5.14	5.65	6.22	6.84	7.52	8.27	10.53	12.32	15.95
Net Current Assets	57.16	32.62	18.22	15.41	22.63	16.28	21.53	23.81	26.94	34.20
Investment (Pension)	98.44	102.59	106.55	110.26	113.74	116.92	119.82	122.41	124.71	126.65
Total	731.85	725.64	718.56	717.16	724.90	713.27	712.47	707.89	703.38	702.14
Financed by										
Share Capital	560.91	560.91	560.91	560.91	560.91	560.91	560.91	560.91	560.91	560.91
Reserves & Surplus	6.59	12.02	9.13	1.83	(3.91)	(18.72)	(22.42)	(19.59)	(16.40)	(9.58)
Bond	10.00	20.00	30.00	40.00	50.00	50.00	50.00	40.00	30.00	20.00
Revenue Subsidy (Deferred Credit)	55.91	30.12	11.97	4.16	4.16	4.16	4.16	4.16	4.16	4.16
Grant for PFT	98.44	102.59	106.55	110.26	113.74	116.92	119.82	122.41	124.71	126.65
Total	731.85	725.64	718.56	717.16	724.90	713.27	712.47	707.89	703.38	702.14

Table 8.4: Projected Profit and Loss Account of the NPDSCL

<i>(Rs. per kwh)</i>	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Energy Input (MU)	364	400	440	484	517	552	589	629	671	716
AT&C Loss (%)	52.5	47.3	41.6	35.7	32.9	30.3	27.3	24.5	21.6	18.7
Power Purchase Rate	2.44	2.44	2.68	2.68	2.95	2.95	3.25	3.25	3.58	3.58
Trans. Charge to STU	0.24	0.24	0.26	0.26	0.29	0.29	0.32	0.32	0.35	0.35
Average Tariff	3.04	3.04	3.80	3.80	4.37	4.37	4.94	4.94	5.26	5.26
<i>(Rs. crores)</i>										
Revenue Billed	62.30	74.54	110.85	131.13	166.06	182.61	226.66	248.89	290.47	318.24
Collection of Arrears	13.50	15.96	10.14	12.88	12.66	14.39	14.03	15.18	14.22	13.73
Sale Outside the State (UI)	13.50	15.30	15.30	16.20	16.20	16.20	16.20	16.20	16.20	16.20
Total Revenue	89.30	105.80	136.29	160.21	194.92	213.20	256.89	280.27	320.89	348.17
Power Purchase Cost	88.82	97.60	117.92	129.71	152.52	162.84	191.43	204.43	240.22	256.33
Transmission Charges to STU	8.74	10.47	12.40	13.72	14.99	16.01	18.85	20.13	23.49	25.06
Gross Surplus/Deficit	(8.26)	(2.27)	5.97	16.78	27.41	34.35	46.61	55.71	57.18	66.78
Salaries and wages	19.77	19.77	20.01	20.15	20.35	20.47	20.67	20.84	21.09	21.22
Pension	1.56	1.85	2.04	2.29	2.52	2.82	3.10	3.41	3.70	4.06
Transfer from PFT	(1.56)	(1.85)	(2.04)	(2.29)	(2.52)	(2.82)	(3.10)	(3.41)	(3.70)	(4.06)
Others	0.86	0.89	0.93	0.97	1.01	1.05	1.09	1.13	1.18	1.23
Total Establishment Expenses	20.63	20.66	20.94	21.12	21.36	21.52	21.76	21.97	22.27	22.45
O&M Expenditure	2.46	2.71	2.98	3.28	3.61	3.97	4.37	4.81	5.29	5.82
Provision for bad debts	0.15	0.15	0.20	0.19	0.22	0.21	0.23	0.22	0.21	0.18
EBITDA	(31.50)	(25.79)	(18.15)	(7.81)	2.22	8.65	20.25	28.71	29.41	38.33
Revenue Subsidy (Deferred Credit)	31.50	25.79	18.15	7.81	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation	(19.66)	(20.82)	(21.64)	(22.30)	(22.96)	(23.46)	(23.95)	(24.45)	(24.94)	(25.44)
Interest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.40)	(1.80)
PBT	(19.66)	(20.82)	(21.64)	(22.30)	(20.74)	(14.81)	(3.70)	4.26	6.87	14.69

Table 8.4: (Contd.)

(Rs. crores)	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
PBT	(19.66)	(20.82)	(21.64)	(22.30)	(20.74)	(14.81)	(3.70)	4.26	6.87	14.69
Taxation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.43)	(2.31)	(4.94)
PAT	(19.66)	(20.82)	(21.64)	(22.30)	(20.74)	(14.81)	(3.70)	2.83	4.56	9.75
Balance Brought Forward	0.00	(19.66)	(40.48)	(62.12)	(84.42)	(105.16)	(119.97)	(123.67)	(120.84)	(117.65)
Dividend	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.37)	(2.93)
Profit/Loss Carried to B/S	(19.66)	(40.48)	(62.12)	(84.42)	(105.16)	(119.97)	(123.67)	(120.84)	(117.65)	(110.83)

Table 8.5: Funds/Cash Flows to GoN

(Rs. crores)	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Book Adjustment										
Share Capital	560.91									
Cash Flows										
Opening Balance	0.00	(223.66)	(259.91)	(288.66)	(313.66)	(338.66)	(338.66)	(338.66)	(328.66)	(314.89)
Revenue Subsidy	(87.41)									
Contribution to PFT	(100.0)									
Capex Grant	(26.25)	(26.25)	(18.75)	(15.00)	(15.00)					
Bond	(10.00)	(10.00)	(10.00)	(10.00)	(10.00)					
Cash Outflow	(223.66)									
Redemption of Bond	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00
Interest Receipt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40	1.80
Dividend Receipt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.37	2.93
Closing Balance	(223.66)	(259.91)	(288.66)	(313.66)	(338.66)	(338.66)	(338.66)	(328.66)	(314.89)	(300.16)

9. REGULATORY FRAMEWORK

9.1 Emerging Regulatory Regime

219. With the enactment of the Electricity Act, 2003, there has been a paradigm shift in the regulatory framework of the power sector in the country. The new Act replaces the earlier enactments, namely the Indian Electricity Act, 1910, the Electricity (Supply) Act, 1948, and the Electricity Regulatory Commission Act, 1998 but preserves their relevant features. The purpose of this comprehensive legislation has been to provide an enabling framework for accelerated and more efficient development of the power sector through introduction of such new concepts as power trading and open access to transmission and distribution systems. Thus, the Act encourages competition with regulatory oversight, which is expected to yield efficiency gains and, in turn, result in availability of quality supply of electricity to consumers at competitive rates.

220. While the Electricity Act 2003 gives all the states enough flexibility to develop their power sector in the manner they consider appropriate, the Act has several implications for reforms and restructuring of the sector in a state like Nagaland. Some of them have already been discussed at the appropriate place in the earlier chapters. We now pull them together in this chapter for a better understanding of the new regulatory regime.

221. We also outline the process of establishing the State Electricity Regulatory Commission as mandated under the Act along with a proposed organisation structure for the SERC. In this regard, we have revised our observations, wherever necessary, as contained in the Inception Report and a subsequent report on the subject.

9.2 Communitisation Act and Rules

222. An important piece of legislation having strong bearing with the power sector reform in the state is the Nagaland Communitisation of Public Institutions and Services Act, 2002 (hereinafter referred to as Communitisation Act), which was passed by the Nagaland Legislative Assembly (Act No. 2 of 2002).

223. As mentioned earlier, being encouraged by visible improvements on account of communitisation in the field of elementary education and primary health services, the government of Nagaland has brought the power sector under the purview of the Communitisation Act, and notified Nagaland Communitisation of Electricity Management in Villages by Village Councils Rules, 2002 (hereinafter referred to as Rules). These Rules provide for establishment of VEMB and UEMB and their empowerment to collect revenue from the retail consumers as per the single-point metering and billing system. Under the provisions of the Rules, VEMB/UEMB is empowered to set tariff for the retail supply to their customers.

We have examined the status of VEMB/UEMB under the provisions of the Electricity Act, 2003 and hold the view that they can continue to supply electricity to retail consumers (based on single-point metering and billing system) in the specified area as authorised person (agent or franchise) of DoP (or its successor entities) under Section 14 of the Act.

VEMB/UEMB would not be required to obtain any separate licence from the regulatory commission; DoP shall act as the deemed licence holder and shall be responsible for distribution of electricity by VEMB/UEMB in the specified areas within its own jurisdiction.

We also hold the view that VEMB/UEMB cannot fix tariff for the retail supply. Under Section 62 of the Electricity Act 2003, only the SERC has the power to determine retail tariff. Thus, the tariff rebate allowed to VEMB/UEMB by empowering them to set the retail tariff is not legally valid. The present arrangement may, however, be modified wherein tariff rebate can be redefined as service charges for billing and collection of revenue.

224. During presentation of the Inception Report to the government, the consulting team was specifically asked to assess the feasibility of un-metered retail supply in villages.

We have examined this issue and our view is that though the retail supply of electricity is carried out by VEMB, DoP remains exclusively responsible for the supply as licence holder. And as such it has a legal obligation, under Section 55 of the Electricity act 2003, to undertake supply of electricity only through installation of energy meters.

Section 55 of the Act further stipulates that no licensee shall supply electricity, after the expiry of two years from the appointed date, except through installation of a correct meter. This means installation of consumer meters may be deferred for a while but cannot be avoided legally. We recommend that DoP plan for installation of energy meters for rural supply of electricity.

9.3 Establishment of the SERC

225. The emerging regulatory framework mandates that the state government not only remains away from running the business of electricity supply industry but also from regulation of the sector including determination of tariffs. In fact, one of the main components of the power sector reform is to establish independent regulation. Almost all countries, which have gone through the process of reform, have entrusted the regulatory responsibilities to an independent authority. In India, as many as 21 states have already constituted Regulatory Commission.

226. Section 82 of the Electricity Act, 2003 stipulates that within six months of coming into force of the Act, every state government, by notification, must set up a State Electricity Regulatory Commission. Thus, by not setting up the Commission before 10th December 2003 GoN has already become a defaulting state.

It is recommended that the government of Nagaland establish a full fledged regulatory commission without any further delay. The Commission may be known as Nagaland Electricity Regulatory Commission (NERC, for short).

NERC shall be a body corporate having perpetual succession and a common seal, with power to acquire, hold and dispose of property, both movable and immovable, and to enter into contract.

On the Issue of Joint Commission

227. There has been a line of thinking that favours setting up a joint regulatory commission for the neighbouring states. Section 83 of the Electricity Act, 2003 also provides for establishing Joint Commission. The Joint Commission shall consist of one member from each of the participating states and Union territories and the Chairperson shall be appointed from amongst the members by consensus, failing which by rotation.

In our opinion, the political and administrative scenario in the northeast region varies across the neighbouring states. A joint regulator would find it extremely difficult to do equal justice to all the states and obtain same kind of commitment and support from different governments. Besides, consumers from different states would be required to travel unnecessarily to represent their cases whenever needed. It is, therefore, recommended that GoN establish its own regulatory Commission, which may be headed by a single-member.

Since the NERC would be a single member commission, it is advisable to appoint a person with adequate knowledge of engineering, commerce and management. A High Court judge may not be an appropriate choice.

Role and Functions of the NERC

228. According to the philosophy of the Electricity Act, 2003, the government shall retain only the policy-making power and responsibility of safeguarding public interest leaving the Regulatory Commission to regulate the sector. The Regulatory Commission is a quasi-judicial body and its procedure of work has to be designed accordingly.

229. The key characteristic features of a regulatory process are: *independence, transparency, participative decision-making, and accountability*. Quasi-judicial process of open hearing, reasonable opportunity to all stakeholders and prior publication of the procedure and regulation plus information disclosures can ensure transparency and participative process. Accountability may be ensured as follows:

- All orders are to be passed in writing giving reasons of the decision;
- Orders have to be subject of appeal and/or review; and
- Annual report of the Commission must be placed before the legislature.

230. As provided in Section 86 of the Electricity Act, 2003, the main role and functions of the NERC shall be as follows:

- (a) Determination of tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk and retail, as the case may be, within the state;
- (b) Regulate electricity purchase and procurement process of distribution licensees;
- (c) Issue licensees for transmission, distribution and intra-state trading and set terms and conditions of such licensees;
- (d) Specify grid code and service standards and enforce quality, continuity and reliability of supply;
- (e) Adjudicate disputes among licensees;

- (f) Ensure consumer grievance settlement machinery and set up ombudsman for consumer complaints; and
- (g) Tender advice to GoN on important matters relating to electricity.

Notification of the NERC

231. In an interim report, we have laid down the steps to be followed for notification of the Regulatory commission. We reiterate them for ready reference.

Notification of the NERC would involve the following steps:

- (a) *The Cabinet has to take a formal decision for constituting the NERC (which may be known as Nagaland Electricity Regulatory Commission) as well as decision regarding its funding, location of the office, and skeleton staff to be put in place.*
- (b) *GoN has to nominate the Power Secretary as the Convenor of the Selection Committee to be constituted under Section 85 of the Electricity Act, 2003, for selecting Chairperson-cum-Member of the NERC.*
- (c) *The Power Secretary has to write to the Chief Justice of the High Court to nominate Chairperson of the Selection Committee. He has to write also to CEA or CERC to nominate a member of the Selection Committee. The Chief Secretary would be another member of the Selection Committee.*
- (d) *The Power Secretary is required to advertise or issue circular inviting names/candidature for the post of Chairperson-cum-Member of the NERC, indicating the qualification as prescribed U/s 84 of the Electricity Act, 2003.*
- (e) *The Selection Committee would recommend a panel of two names and GoN has to select one out of them as Chairperson-cum-Member of the NERC.*

Furthermore, GoN is required to issue notification in respect of the following:

- 1. Nagaland Electricity Regulatory Commission (Conditions of Service of Chairperson) Rules, 200_ (Annex 9.1)*
- 2. Rules regarding Oath of Office and Secrecy of Chairperson of Nagaland Electricity Regulatory Commission (Annex 9.2)*
- 3. Appointment of the Chairperson-cum-Member of the NERC (Annex 9.3)*
- 4. Notification of the NERC with effect from the date the First Member joins (Annex 9.4)*
- 5. Notification of terms and conditions of service of the Secretary, Officers, and other employees (Annex 9.5)*

Organisation Structure of the SERC

232. *Lean structure:* Though the NERC will have enough work to do in due course of time, in the initial stage, the organisational structure may be designed to discharge only the most important statutory duties. The need for a lean set up arises because of special conditions and constraint of resources in Nagaland in terms of finance, personnel and technical preparedness. Besides, the Government of Nagaland shall continue to be

deemed licensee for quite sometime and hence the workload regarding issue of license need not put much burden on the single-member Commission in the beginning.

It is recommended that the NERC be set up with the minimum strength of manpower as follows (Figure 9.1): Chairperson-cum-Member – 1; Director (Tariff) – 1; Commission Secretary – 1; Deputy Director (Tariff) – 1; Deputy Secretary – 1; Assistant Secretary – 1; Private Secretary – 1; Personal Assistant-cum-Computer Operator – 5; Peon – 4.

We propose that the post of Chairperson-cum-Member in NERC be created at least in the rank of Additional Chief Secretary. The terms and conditions of service have been suggested separately (Annex 9.1)²⁸.

The Director (Tariff) and Commission Secretary may be in the rank equivalent to Superintendent Engineer, the Deputy Director (Tariff) and Deputy Secretary may be in the rank and pay of Executive Engineer, and the Assistant Secretary may be placed in the rank and pay of SDO.

233. While it may be necessary to directly appoint Chairperson-cum-Member, the rest of the posts may be filled up by diverting officers and staff from the Department of Power and other relevant department of GoN. Of course, the selection of the officers/staff has to be done from among those who have formally applied for a post in the NERC and who are eligible in terms of the qualification and work experience as specified against each post (Annex 9.5, Appendix I & II). Initially, appointment of the diverted officers and staff would be on deputation and at a later stage they may be absorbed.

234. *Expanded structure:* With the increase in the scope of regulatory activities, it would be necessary to expand the organisation structure of the NERC. A full-fledged structure of the SERC is also presented in this report (Table 9.1). The expanded structure envisages the following additional posts: Adviser – 1 (on contractual terms); Directors (Engineering, Law and Administration) – 3; Deputy Directors – 9; Public Affairs Officer – 1; and other staffs such as Librarian and Security Officer.

235. In framing regulations regarding terms and conditions of service of the officers and staff, due consideration has been given to this expanded structure (Table 9.1). Thus, the said regulations would suffice even when the currently proposed structure undergoes expansion.

Financial Commitment for the NERC

236. Keeping in view the initial lean structure of the NERC, we have worked out capital and revenue expenditure.

At a bare minimum level, capital expenditure would be Rs.23.25 lacs (Table 9.2). Recurring expenditure is estimated to be Rs. 2.81 lacs per month.

237. It is quite evident from the budget estimates that establishment of the NERC is not going to cause heavy financial burden for the government of Nagaland. Besides, since a good number of officers/staffs would be on deputation from DoP and other departments the salary bills would be met out of the existing government budget.

²⁸ In most of the states, retired Justice or people from the rank of Chief Secretary or Addl. Chief Secretary have been appointed as Chairperson of the SERC

Figure 9.1: Organisation Structure of the SERC

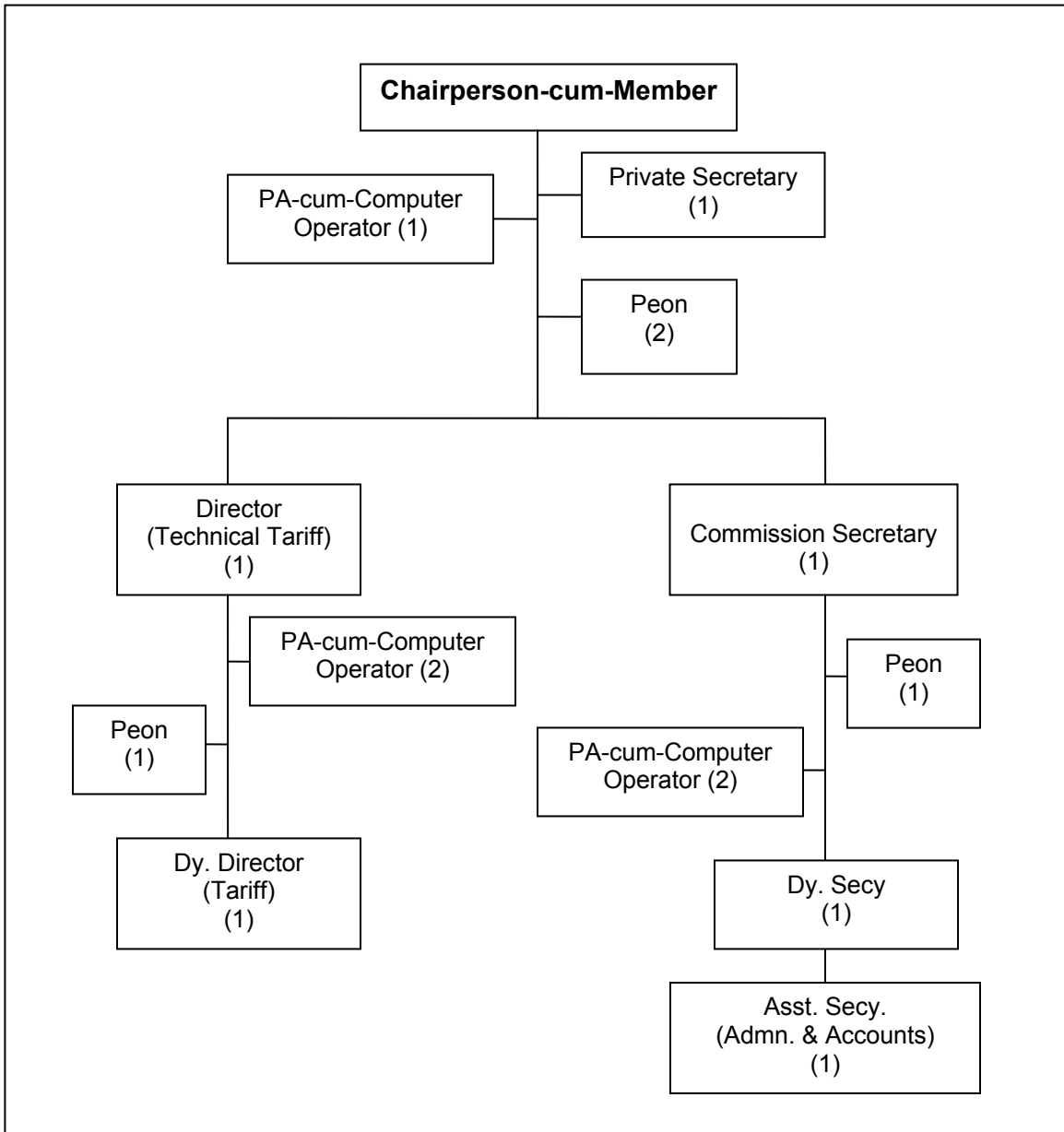


Table 9.1: Expanded Structure of the SERC

<u>CHAIRPERSON'S OFFICE</u>	Private Secretary
	Steno-cum-Computer Operator
	Advisor (on contractual terms)
<u>COMMISSION SECRETARY</u>	Secretary
	Public Affairs Officer
	Personal Assistant
	Steno-cum-Computer Operator
<u>TARIFF</u>	Director (Tariff)
	Deputy Director (Tariff Economics)
	Deputy Director (Tariff Engineering)
	Deputy Director (Accounts & Financial Analysis)
	Personal Assistant
	Clerk-cum-Computer Operator
<u>ENGINEERING</u>	Director (Engineering)
	Deputy Director (Generation & Power Procurement)
	Deputy Director (Transmission)
	Deputy Director (Distribution and Trading)
	Personal Assistant
	Clerk-cum-Computer Operator
<u>LAW</u>	Director (Law)
	Deputy Director (Law)
	Personal Assistant
	Clerk-cum-Computer Operator
<u>ADMINISTRATION</u>	Director (Administration)
	Deputy Director (Information Technology)
	Deputy Director (Pay & Accounts)
	Deputy Director (Personnel)
	Accountant
	Security Officer
	Cashier
	Librarian
	Caretaker
	Personal Assistant
	Clerk-cum-Computer Operator
	Common Supporting Staff under the Director (Administration)
Receptionist	1
Telephone Operator	1
Messengers/Notice Server	2
Drivers	2
Security Guards/Watchmen	2
Attendants	5

Table 9.2: Estimated Capital Expenditure

Sl. No.	Item	Rs.
1	Office Furniture	5,00,000
2	Court Room	5,00,000
3	Computer & Office equipment	5,00,000
4	One car for Chairman (Ambassador)	3,70,000
5	One staff car (Bolero Jeep)	4,55,000
Total		23,25,000

Table 9.3: Recurring Annual Expenditure

Sl.No		Nos.	Scale of Pay	Salary P.M (Rs.)	Salary P.A (Rs.)
1	Chairperson (equiv. to Addl. Chief Secretary)	1		26,000	3,12,00
2	Secretary	1	12000-375-16500	22,610	2,71,320
3	Director (Tariff)	1	-do-	22,610	2,71,320
4	Deputy Director (Tariff)	1	10000-325-15000	18,592	2,23,104
5	Deputy Secretary	1	-do-	18,592	2,23,104
6	Asst. Secretary	1	8500-275-11800-300-14200	15,812	1,89,744
7	Private Secretary	1	8000-275-13500	15,812	1,89,744
8	Personal Asst.	5	5000-150-8000	9,283	5,56,980
9	Office Peon	3	2550-55-2660-60-2300	4,674	1,68,264
10	Personal Peon	1	750 PM	750	9,000
Sub-Total (A)					24,14,580
Other Est. Charges					
10	Travel Expenses				3,00,000
11	Office Expenditure				3,00,000
12	Motor Vehicle		2 Nos		55,000
13	Rent, Rate & Taxes				3,00,000
Sub-Total (B)					9,55,000
Grand Total (A+B)					33, 69,580

10. SOME MORE ISSUES AND RECOMMENDATIONS

10.1 Communication Strategy

Communication about Reform Agenda

238. Experience suggests that successful implementation of reform process requires, *inter alia*, broader understanding and acceptability of, and commitment to, reform agenda and process among the various stakeholders, namely the bureaucrats, DoP employees, and the consumers. The reform process must bring about transformation in the mind-set of the stakeholders. The people must understand the genesis of reforms, the content, the agony and pain during the reform process, and what promises all these hold for future. And for all these, we need to evolve a communication strategy, and identify change agents who can provide transformational leadership.

Some measures for improved communication to the stakeholders may be as follows:

Communication with the employees

- (a) It is recommended that DoP share the reform agenda and process with the employees at all levels. To begin with, this reform study must be made available to every one, including the office bearers of the unions and the associations.*
- (b) Also, seminars, workshops, discussion, etc. need be organised within the department as an ongoing process. (It may be recalled that the consulting team held a couple of seminars with the DoP officials for sharing their interim findings and recommendations). An important objective of all these seminars, workshops, etc. would be to respond to the employee concerns about the job security and service conditions in the newly created entity.*
- (c) We further recommend that DoP launch an in-house bulletin and thereby open a new channel of communication within the organisation.*
- (d) A core reform team needs be identified who would be responsible for providing transformational leadership and help gaining support for reform from employees at every level.*

Communication with the consumers

- (e) High priority needs be accorded to building public consensus about power sector reforms. GoN/DoP must come out with bulletins, in English and local languages, highlighting the key issues in the power sector, especially explaining the theft of energy and the resultant commercial losses.*
- (f) Senior officials from the Power Ministry and DoP also need to communicate with the public about the sector problems and the government commitment to reform through public forum, radio, cable network, etc.*

Creation of a communication cell & website

- (g) It is recommended that DoP create a corporate communication cell in the HQ.*
- (h) There is an urgent need to develop a DoP website for effective communication with the employees, consumers, and world at large. Website would also enable DoP to make data and information accessible to all.*

Anti-Theft Campaign

239. Pilferage and theft of power is the single most important factor to cause mounting losses of the sector. With the proliferation of the single point metering programme through VEMB/UEMB, this menace will be curbed. But, implementation of the SPM is a long drawn process, especially in the urban areas. It is important therefore to design and launch anti-theft campaign. In recent period, DoP has occasionally released ads in the local news papers regarding its plan for raids and penalties for theft of power. This is a laudable move and needs be strengthened.

We further recommend that DoP develop a broad-based anti-theft campaign and sustain over a reasonable period of time. In this regard, DoP may like to take clues from the utilities in other states (Box 10.1 & 10.2).

Box 10.1: Anti-Theft Initiatives in Other States

The WBSEB along with other power sector organizations in the state launched a major campaign to increase awareness among the public and the board's employee's about anti-theft law. Posters, desk and wall calendars, banners, leaflets, wall writings, audiocassettes, newspaper advertisements, radio, and television were used to spread the message.

The Board also observed *anti-energy theft day* on 13 July 2002. On this day, the state wide *padayatra* with colourful tableaux, posters, festoons, banners, etc., conveying different messages about power theft was organized. The WBSEB has also started a special toll-free phone service through which information on power theft can be given to the board; the caller's identity is kept secret.

The anti-theft legislation of Andhra Pradesh also provides for stringent action against theft of power. A comprehensive energy audit has also been undertaken to identify areas with high commercial loss to focus attention on the detection of energy theft. State-wise inspections were carried out on a massive scale and the entire state machinery, including law and order officers, were sensitised to render assistance to the board's employees. As per APTRANSCO (Andhra Pradesh Transmission Company) there has been a quantum jump in registration of cases, and losses were brought down to below 10% in over 100 towns. The distribution companies in Andhra Pradesh have also provided for online submission of complaints related to energy theft.

In Delhi, the NDPL (North Delhi Power Limited) has a Customer Relation Coordinator to whom complaints on theft of power can be made via telephone, postal or the web confidentially. It has also brought out a newsletter, which details the action that can be taken if a consumer is found stealing electricity.

The AEC (Ahemdabad Electricity Company Ltd) has formed revenue protection and recovery groups to detect the theft of electricity. Confidential information on electricity theft can also be sent to the AEC. States such as Kerala, Tamil Nadu, and Punjab have also formed anti power theft squads and teams to help field officers deal with such situations.

Source: *Regulatory*, Newsletter, TERI, March 2003

Box 10.2: Anti-Theft Campaign



THERE IS STILL TIME, YOU CAN AVAIL OF THE VOLUNTARY DISCLOSURE FACILITY AND AVOID PUNITIVE ACTION AS WELL AS SOCIAL STIGMA.



STEALING ELECTRICITY IS A CRIME

If you are found stealing electricity :

1. Your electricity supply shall be disconnected immediately.
2. The estimated arrears of electricity undercharged shall be calculated and backdated
3. You will be given the option of disclosure & payment by installments.
4. Failing the acceptance of this option, Criminal proceedings shall be initiated & you could face a fine as well as imprisonment

Source: Newsletter on NDPL Facilities



IT'S DANGEROUS AND IT'S A CRIME

Source: AEC Website

Campaign for Consumer Education and Help Line

240. It is now a well known fact that most of the consumers do not know the efficient use of electricity and as a result cause avoidable wastage of energy. Besides, consumers in many cases do not have adequate knowledge about metering, especially electronic meter, and billing details (e.g. how energy charges are computed). Many a times they wonder whom to contact to discuss and settle their problems. Over a period of time, lack of understanding by the consumers and lack of transparency in transactions by the service providers grow into mistrust and conflict between the two.

We strongly urge that DoP design and launch consumer education programme through print and other local media, especially to create awareness about energy savings (Box 10.3 & Annex 10.1) and the don'ts in the use of electricity. In this regard, clues may be taken from utilities in other states (Box 10.4). It would also be desirable to educate consumers about electronic meters (Box 10.5).

We also recommend that DoP display at prominent public place answers to frequently asked questions by the consumers (Box 10.6). Alongside, DoP must provide helpline services to its consumers. Wide publicity should be given to the names and contact numbers for the helpline services.

Box 10.3: Conservation of Electricity



	DON'T KEEP THE LIGHTS, FANS & COOLERS ON WHEN NOT IN USE.
	USE FLUORESCENT TUBES, LAMPS IN PLACE OF ORDINARY INCANDESCENT LAMPS.
	DON'T USE AIR-CONDITIONERS AT PEAK HOURS IN THE EVENING.
	USE LPG FOR COOKING, INSTEAD OF ELECTRIC HEATERS, HOT PLATES ETC.
	DON'T KEEP THE ELECTRIC WIRING LOOSE CAUSING SPARK AND HEATING.
	USE THE DOMESTIC CONNECTION FOR RESIDENTIAL PURPOSES ONLY.
	DON'T USE THE CONNECTED LOAD HIGHER THAN THE SANCTIONED LIMIT.



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Box 10.4: Dont's for Electricity Consumers



Do not connect multiple equipments to a single point outlet to avoid excess loading.

Do not use bare wires for extending supply from one point to other or from one premise to other premises. It is hazardous and causes accidents.

Avoid loose connections and joints.

Avoid theft of electrical energy, It is cognizable offence and attracts penal charges and / or imprisonment.

Do not tamper with energy meters, meter seals or metering equipments, it is an offence.

Do not pay your bill amounts to unauthorised persons. Pay only at MSEB / Authorised cash collections center and obtain receipts.

Do not plant trees below the overhead power lines.

Do not meddle with live wires/points. It may cost your life.

Don't get the wiring works done by unauthorised persons, which is an offence under the Indian Electricity Rules 1956.

Don't use substandard wires and wiring accessories. Don't install fittings and appliances of poor quality.

Don't give the application before completing the wiring in your premises.

Don't hand over the application to the Board staff; don't send it by ordinary post.

Don't delay to pay the security deposit and he service connection charges once the advice for payment is received.

Don't construct your building underneath a High Tension or Low-Tension line without proper clearance.

Don't shift the meter or meter board without proper sanction by MSEB.

Source: MSEB website

Box 10.5: About the Digital Meter

“The World is going Digital

The superiority of the digital meter over its electro-mechanical counterpart has been established all over the world. Little surprise then those countries like France, Norway, Sweden, Denmark, Italy, UK, South Africa, Brazil, Australia, New Zealand and Turkey has already switched to digital meters. The picture is no different in Asia. Countries like Hong Kong, Indonesia, Korea, Malaysia & Singapore too have reposed their faith in the digital meter. In tune with our mission of making BSES a world-class-technology driven enterprise, we are committed to providing all our customers with state-of-the-art digital meters.

Your BSES Electronic/Digital Meter ...

- ✓ Is made of world class electronic components
- ✓ Has no moving parts, which in turn facilitates sustained accuracy
- ✓ Is intelligent with multiple capabilities of communication, logic, memory and capacity
- ✓ Has an in-built memory which can provide data regarding monthly energy consumption and maximum power demand for each month.
- ✓ Has the ability to interact with other electronic devices and facilitate remote meter reading
- ✓ Has the capability to log critical information with date and time.”

Source: Synergy, Jan-Feb, 2005, BSES, New delhi

Box 10.6: Frequently Asked Questions

Q 1.	Why NPDSCL is asking
Q 1.	How to become a NPDSCL consumer?
Q 2.	What are the requirements for a new connection?
Q 3.	What is the procedure of Billing?
Q 4.	How to increase sanctioned load?
Q 5.	How to check one’s consumption
Q 6.	How to lodge complaint?
Q 7.	How to ensure safety?
Q 8.	Why NPDSCL asking for additional security deposit?
Helpline Numbers	
For ‘no supply’ & ‘power cut’ related complaints	
Contact person _____	Dial _____
For Billing queries	
Contact person _____	Dial _____
For ‘theft of power’ related complaints	
Contact person _____	Dial _____

10.2 Revenue Management

Consumer Indexation

241. For providing better customer service and improved revenue management, it is important to develop 'consumer indexation' system alongside a baseline survey. This provides a reliable consumer database with necessary profile, including linkages to feeders, poles, etc. In a sense, consumer indexation provides the electrical addresses of the consumers.

242. Mokokchung electric division has already completed a pilot project on consumer indexation (*Box 10.7*). Apart from Mokokchung, no other division has put any effort for consumer indexation. It may be mentioned here that consumer indexation is a requirement under the MOA signed by DoP with the MOP, GOI.

It is recommended that DoP initiate measures for consumer indexation in all the revenue divisions. We understand from our preliminary interaction with some IT consulting firms that inexpensive software can be developed in place of manual system introduced in Mokokchung town. We recommend that DoP engage a suitable local firm to develop such software.

Box 10.7: Consumer Indexation in Mokokchung Town

In Mokokchung town, there are 19 distribution transformers (DTs) through which 5,047 consumers (excluding bulk consumers) are fed. For consumer indexation, DTs are first numbered according to the location; the poles are then numbered as per the DTs; and the consumers are finally numbered as per the pole.

The Mokokchung division expects the following benefits from consumer indexation:

- *Better management of LT distribution system:* Given the identification codes of the DTs, poles and consumers, management of LT distribution system becomes easier.
- *Detection of overloaded DTs and 3-phase unbalanced load:* Since all the consumers are grouped DT-wise, an overloaded DT can be easily detected from the number of consumers/loads connected to it. Similarly, 3-phase unbalanced load can be detected from the phase-wise connected consumers. Identification of overloaded DTs or 3-phase unbalanced load helps avoid their damages.
- *Locating a consumer:* Because of numbering and mapping, a consumer can be located even without the help of meter reader.
- *Prompt response to consumer complaints:* Consumer indexation facilitates easy identification of the consumer and thereby helps attending the complaint quickly.

Meter Reading, Billing and Collection

243. Apart from Dimapur and Kohima Divisions, billing has not been computerised in other divisions. DoP first introduced Computerised Revenue Management Systems (CERMS) in Dimapur Electrical Division in August 1997 and later in Kohima Electrical Division in April 2000. The cycle of meter reading, billing and collection under CERMS is the same for Dimapur and Kohima divisions and operates as described below.

244. Each electrical sub-division is divided into well-demarcated areas, called the 'billing cycles' (*Table 10.1*). Usually, a sub-division will have 15-16 billing cycles. Each billing cycle is further sub-divided into clearly marked 'billing routes'. The number of meter readers under each SDO roughly equals to number of billing routes in a billing cycle. The number of consumers on each billing route is limited to 100 so that each meter reader can take readings of all the consumers on a billing route in one single day.

Table 10.1: Billing Cycles, Meter Readers and Operators

Dimapur Electrical Division	SDO I	SDO II	SDO III	Total
No. of Billing Cycles	16	14	14	44
No. of Meter Readers	11	8	7	26
No. of Data Operators	8	4	2	14

245. The meter reading is done every month. On the first working day of a month, all the meter readers under a SDO take the readings in their respective billing routes and thereby cover all the consumers in the first billing cycle. Next day the process is repeated to take meter readings in the second billing cycle. This goes on until the meter reading for all the billing cycles is completed. The number of working days required for the completion of meter reading equals the number of billing cycles and usually ends in the third week of the month.

246. The data-operators key-in meter readings in the computers every day and that kick-starts the billing process. The consumption bill of a month is served to the respective consumer in the following month when the meter reader goes again to take the meter reading. Thus, there is a gap of 30 days between meter reading and serving of the bill to the consumer (*Table 10.2*).

Table 10.2: Meter Reading-Billing-Collection Cycle Time

From	To	No. of Days
<u>Non-Government Consumers</u>		
Meter Reading	Serving the Bill	30
Serving the Bill	Due Date for Payment	15
Due Date for Payment	Payment Date with Surcharge	30
Normal Cycle Time		75
Payment Date with Surcharge	Ready for Disconnection	7
<u>Elongated Cycle Time</u>		82
<u>Government Consumers</u>		
Meter Reading	Serving the Bill	30
Serving the Bill	Due Date for Payment	30
Due Date for Payment	Payment Date with Surcharge	30
Normal Cycle Time		90
Payment Date with Surcharge	Ready for Disconnection	7
<u>Elongated Cycle Time</u>		97

247. Taking into account the due date for payment with surcharge, the normal cycle time from billing to collection is 75 days for non-government consumers and 90 days for government consumers. In case of default, one more week goes as notice period before the division can initiate disconnection. Thus, the computerisation of billing systems has not effectively reduced the cycle time. There is a need for 'process reengineering'.

It is recommended that DoP introduce system of spot billing with hand-held computers (Box 10.8). To begin with, the spot billing system may be introduced for Dimapur and Kohima divisions. This would involve procurement of around 60 numbers of hand-held computers at an estimated cost of Rs. 8 to 9 lacs. This is a meagre investment but would reduce the meter reading and billing cycle time drastically and improve cash flow position of the department²⁹.

DoP may also consider offering attractive rebate to those consumers who are willing to make spot payment through cheque. This would further improve the cash flow position. The bill format can be suitably designed to receive payment on the spot.

Box 10.8: Spot Billing With Hand-Held Computer



The hand-held computer is a battery operated, user-friendly, intelligent terminal with a built-in printer used for issuing bills on the spot to the consumers. In this system, the meter reader goes to the consumer and takes down the reading directly into the Hand-held Terminal. The bill is generated then and there as the tariffs, previous meter reading, etc. are already fed into it. The consumer gets the bill within no time and that too in front of his eyes. Bill once printed cannot be reprinted and this reduces scope for manipulation once the reading is being entered. The consumers are usually given a passbook so as to confirm their receiving the bill of that month.

First and foremost advantage of the system is that it saves a lot of time. The meter reader is not required to go twice to the consumer's place – once for taking the reading and next to give the bill. There is no need of data entry as the bills are produced on the spot. The required data are down loaded from main PC at the office prior to going on round for meter reading. Similarly, at the end of the day meter readings are uploaded into main PC in the office. The downloading/uploading does not take more than few minutes because the vendor designs the interface software in high-level language.

With the hand-held system a meter reader is expected to cover between 200 and 300 consumers in a day. This enhances productivity of the meter readers. The consumers also gain time, as the payment due dates will be different for different people and they need not wait in a long queue for payment of bills.

²⁹ This recommendation was made in the Inception Report and DoP readily agreed to procure hand-held computers. However, for whatsoever reasons, DoP has not yet implemented our recommendation.

248. A typical collection problem arises in case of local bodies and government institutions, and government department. Political interference and other considerations often compel utilities in most states to continue supply of power to them even when bills are overdue for payment. These are all bulk consumers, and in Nagaland this category accounts for about 23 percent of revenue arrears (as of end 2002-03).

To tackle the problems of revenue collection from local bodies, government institutions, and government departments, GoN may be approached to recover the dues through appropriation of state budget allocation to them. Such a mechanism has already been adopted in states like Andhra Pradesh.

10.3 Accounting System

249. At present, DoP operates under governmental systems of accounting, which recognises revenue and expenditure on cash basis. As a result, the system does not provide ready figures for accounts receivable and accounts payable. One needs to compute them separately as and when required. Besides, the accounts are maintained under typical budget heads and details are not regrouped to provide relevant management information for decision-making.

250. There is an urgent need to introduce commercial accounting system. In fact, this would be a prerequisite for preparing balance sheet and profit and loss account for each revenue division, which is going to be reorganised as a profit centre.

It is recommended that DoP engage a professional consultancy firm for design and implementation of accrual based accounting system using readily available software.

The scope of the work would be as follows:

- (a) Preparation of a detailed Accrual Accounting Manual*
- (b) Preparation of an Exhaustive Chart of Accounts and Code of Accounts*
- (c) Propose models of financial statements*
- (d) Prepare formats of accrual reporting such as monthly management reports, quarterly reports, and other annual and semi-annual reports based on the properly designed financial management information system.*
- (e) Conduct workshops/training sessions for master trainers and stakeholders*
- (f) Practical implementation of the designed accrual accounting system as well as the financial management information system in a sample area*
- (g) Other tasks associated with above*

The professional consultancy firm should have experience of government accounting and budgeting including accounting codes, list of major and minor heads, finance accounts, appropriation accounts and other government accounting manuals.

Annex to Chapter 3

Annex 3.1: Trends in Energy Consumption

Categories	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	CAGR
<i>Domestic Light & Power</i>										
No. of Consumers	96,825	97,097	100,966	101,596	103,899	111,160	124,835	132,638	141,946	
Consumption (MU)	58.03	71.43	74.00	74.04	83.50	94.80	42.93	71.41	82.84	4.5%
<i>Industrial</i>										
No. of Consumers	1,374	1,379	1,382	1,192	1,256	1,260	1,252	1,279	1,398	
Consumption (MU)	21.00	19.97	21.03	20.06	22.50	25.72	7.71	19.95	23.29	1.3%
<i>Bulk</i>										
No. of Consumers	127	127	127	175	180	175	170	179	195	
Consumption (MU)	19.97	20.15	20.01	19.53	22.00	24.29	13.91	19.48	22.61	1.6%
<i>Commercial</i>										
No. of Consumers	17,086	17,198	17,245	14,244	15,232	14,877	14,456	14,693	14,493	
Consumption (MU)	8.90	9.07	9.14	8.89	9.90	11.65	26.25	8.53	9.84	1.3%
<i>Others</i>										
No. of Consumers	625	626	625	814	778	821	846	842	561.00	
Consumption (MU)	5.62	7.08	7.08	6.77	7.85	9.00	13.30	7.15	8.22	
<i>Total</i>										
No. of Consumers	116,037	116,427	120,345	118,021	121,345	128,293	141,559	149,631	158,593	
Consumption (MU)	113.52	127.70	131.26	129.29	145.75	165.46	104.10	126.52	146.80	3.3%

Annex 3.2: Load Pattern

Time Block	Average Load in MW			
	2000	2001	2002	2003
00:00:00	28	30	32	35
01:00:00	28	30	32	35
02:00:00	28	30	32	35
03:00:00	30	32	35	37
04:00:00	30	32	35	37
05:00:00	38	40	45	46
06:00:00	40	45	46	47
07:00:00	39	44	45	46
08:00:00	34	36	38	40
09:00:00	32	33	35	37
10:00:00	27	29	32	34
11:00:00	23	25	27	30
12:00:00	23	25	27	30
13:00:00	24	26	28	32
14:00:00	27	31	37	40
15:00:00	31	36	43	48
16:00:00	35	39	47	51
17:00:00	48	51	55	60
18:00:00	53	56	60	62
19:00:00	54	57	60	63
20:00:00	50	55	57	60
21:00:00	44	47	50	53
22:00:00	33	35	37	40
23:00:00	30	31	33	34
Average	34.5	37.3	40.3	43

Source: SLDC, Dimapur

Month	Average Load in MW				Average
	06:00:00 to 09:00:00	09:00:00 to 17:00:00	17:00:00 to 21:00:00	21:00:00 to 06:00:00	
Apr-03	47	28	63	32	42.5
May-03	47	28	63	32	42.5
Jun-03	48	28	63	33	43.0
Jul-03	48	28	63	33	43.0
Aug-03	50	30	64	35	44.8
Sep-03	50	30	64	35	44.8
Oct-03	50	31	65	36	45.5
Nov-03	50	31	65	36	45.5
Dec-03	51	32	66	37	46.5
Jan-04	51	32	66	37	46.5
Feb-04	52	33	67	38	47.5
Mar-04	52	33	67	38	47.5
Average	49.7	30.3	64.7	35.2	45.0

Source: SLDC, Dimapur

Annex 3.3: Power Purchase during 2003-04

	Pre-ABT								Nov-03	Post-ABT					Grand Total	Monthly Average
	Apr-03	May-03	Jun-03	Jul-03	Aug-03	Sep-03	Oct-03	Sub-Toal		Dec-03	Jan-04	Feb-04	Mar-04	Sub-Toal ²		
Power Purchase (MU)¹	19.38	19.98	22.68	23.30	20.01	18.16	21.53	145.04	24.55	26.53	24.60	22.24	20.54	93.91	263.50	21.96
Purchase Cost (Rs. million):																
NHPC	2.12	1.99	2.51	3.75	3.58	3.77	3.77	21.49	4.29	3.82	2.82	1.78	2.29	10.71	36.49	3.04
NEEPCO	35.33	35.60	32.07	27.90	17.34	14.36	17.70	180.29	44.67	42.40	43.52	41.20	36.52	163.63	388.59	32.38
Sub-Total	37.45	37.59	34.58	31.64	20.91	18.13	21.47	201.78	48.95	46.21	46.34	42.98	38.81	174.35	425.08	35.42
Unit Cost (Rs. per kwh)	1.93	1.88	1.52	1.36	1.05	1.00	1.00	1.39	1.99	1.74	1.88	1.93	1.89	1.86	1.61	
Wheeling Charges (Rs. Million):																
PGCIL	6.07	6.19	7.24	8.08	7.40	6.94	7.61	49.51	4.64	9.45	8.19	6.67	7.15	31.46	85.61	7.13
NERLDC	0.19	0.22	0.22	0.56	0.22	0.22	0.22	1.86	3.43	0.23	0.23	0.23	0.23	0.90	6.20	0.52
Sub-Total	6.26	6.41	7.46	8.63	7.62	7.16	7.83	51.37	8.08	9.67	8.42	6.90	7.37	32.36	91.81	7.65
Unit Cost (Rs. per kwh)	0.32	0.32	0.33	0.37	0.38	0.39	0.36	0.35	0.33	0.36	0.34	0.31	0.36	0.34	0.35	
Total PurchaseCost (Rs. Million)	43.71	44.00	42.04	40.28	28.53	25.29	29.30	253.15	57.03	55.89	54.76	49.88	46.18	206.71	516.89	43.07
Unit Cost (Rs. per kwh)	2.26	2.20	1.85	1.73	1.43	1.39	1.36	1.75	2.32	2.11	2.23	2.24	2.25	2.20	1.96	
Free Power (MU)	-	-	0.11	2.02	4.08	5.40	3.36	14.98								
			Unit cost including free power (Rs. per kwh)						1.58		Unit cost including free power (Rs. per kwh)				1.86	

¹ Excluding free power of 14.96 MU

² Sub-total and unit cost calculations cover the period from Dec-03 to March-04.

Annex 3.4: UI Rates under ABT

Freq. (Hz)	UI Rate Rs./Unit	Freq. (Hz)	UI Rate Rs./Unit	Freq. (Hz)	UI Rate Rs./Unit	Freq. (Hz)	UI Rate Rs./Unit
49.00	4.200	49.38	3.136	49.76	2.072	50.14	1.008
49.02	4.144	49.40	3.080	49.78	2.016	50.16	0.952
49.04	4.088	49.42	3.024	49.80	1.960	50.18	0.896
49.06	4.032	49.44	2.968	49.82	1.904	50.20	0.840
49.08	3.976	49.46	2.912	49.84	1.848	50.22	0.784
49.10	3.920	49.48	2.856	49.86	1.792	50.24	0.728
49.12	3.864	49.50	2.800	49.88	1.736	50.26	0.672
49.14	3.808	49.52	2.744	49.90	1.680	50.28	0.616
49.16	3.752	49.54	2.688	49.92	1.624	50.30	0.560
49.18	3.696	49.56	2.632	49.94	1.568	50.32	0.504
49.20	3.640	49.58	2.576	49.96	1.512	50.34	0.448
49.22	3.584	49.60	2.520	49.98	1.456	50.36	0.392
49.24	3.528	49.62	2.464	50.00	1.400	50.38	0.336
49.26	3.472	49.64	2.408	50.02	1.344	50.40	0.280
49.28	3.416	49.66	2.352	50.04	1.288	50.42	0.224
49.30	3.360	49.68	2.296	50.06	1.232	50.44	0.168
49.32	3.304	49.70	2.240	50.08	1.176	50.46	0.112
49.34	3.248	49.72	2.184	50.10	1.120	50.48	0.056
49.36	3.192	49.74	2.128	50.12	1.064	50.50	0.000

Annex 3.5: Division-Wise AT&C Loss

	DIMAPUR CIRCLE						MOKOKCHUNG CIRCLE						TOTAL
	DMR (Elec)	DMR (Trans)	KMA (Elec)	WKA (Elec)	PHK (Elec)	Sub- Total	MKG (Elec)	TSG (Elec)	CTN (Elec)	MON (Elec)	ZBT (Elec)	Sub- Total	
Energy Input (MU)													
April (2004)	9.808	0.978	4.985	0.956	0.312	17.039	1.910	1.090	0.612	0.602	0.482	4.696	21.735
May	11.123	1.406	6.587	0.918	0.420	20.454	1.782	1.310	0.834	0.615	0.495	5.036	25.490
June	12.020	1.253	6.421	0.813	0.435	20.942	1.476	1.190	0.611	0.701	0.422	4.400	25.342
July	11.965	1.422	6.880	0.355	0.470	21.092	1.942	0.900	0.533	0.702	0.508	4.585	25.677
August	12.999	1.419	5.860	0.347	0.486	21.111	1.873	1.290	0.626	0.525	0.415	4.729	25.840
September	10.526	1.790	7.080	0.364	0.610	20.370	1.921	1.950	0.521	0.618	0.327	5.337	25.707
1st HY - Total	68.441	8.268	37.813	3.753	2.733	121.008	10.904	7.730	3.737	3.763	2.649	28.783	149.791
<i>Average</i>	<i>11.407</i>	<i>1.378</i>	<i>6.302</i>	<i>0.626</i>	<i>0.456</i>	<i>20.168</i>	<i>1.817</i>	<i>1.288</i>	<i>0.623</i>	<i>0.627</i>	<i>0.442</i>	<i>4.797</i>	<i>24.965</i>
October	10.526	1.750	6.260	0.378	0.603	19.517	1.792	0.780	0.550	0.602	0.386	4.110	23.627
November	11.143	1.013	5.530	0.435	0.622	18.743	1.810	2.100	0.530	0.611	0.416	5.467	24.210
December	10.546	1.923	8.050	0.366	0.690	21.575	1.663	0.850	0.561	0.721	0.410	4.205	25.780
January (2005)	10.389	1.860	8.380	0.560	0.634	21.823	1.550	0.890	0.602	0.702	0.373	4.117	25.940
February	11.266	1.480	8.010	0.540	0.520	21.816	1.840	0.920	0.483	0.702	0.499	4.444	26.260
March	10.370	1.500	8.220	0.550	0.530	21.170	1.725	0.910	0.461	0.612	0.355	4.063	25.233
2nd HY - Total	64.240	9.526	44.450	2.829	3.599	124.644	10.380	6.450	3.187	3.950	2.439	26.406	151.050
<i>Average</i>	<i>10.707</i>	<i>1.588</i>	<i>7.408</i>	<i>0.472</i>	<i>0.600</i>	<i>20.774</i>	<i>1.730</i>	<i>1.075</i>	<i>0.531</i>	<i>0.658</i>	<i>0.407</i>	<i>4.401</i>	<i>25.175</i>
FY - Total	132.681	17.794	82.263	6.582	6.332	245.652	21.284	14.180	6.924	7.713	5.088	55.189	300.841
<i>% Share</i>	<i>44.1%</i>	<i>5.9%</i>	<i>27.3%</i>	<i>2.2%</i>	<i>2.1%</i>	<i>81.7%</i>	<i>7.1%</i>	<i>4.7%</i>	<i>2.3%</i>	<i>2.6%</i>	<i>1.7%</i>	<i>18.3%</i>	<i>100.0%</i>
Energy Billed (MU)													
April (2004)	5.361	0.143	1.833	0.177	0.161	7.675	0.962	0.570	0.297	0.131	0.255	2.215	9.890
May	5.803	0.079	1.769	0.124	0.390	8.165	0.993	0.690	0.153	0.159	0.307	2.302	10.467
June	6.314	0.114	1.789	0.154	0.400	8.771	0.672	0.630	0.237	0.236	0.319	2.094	10.865
July	6.314	0.526	1.790	0.182	0.620	9.432	0.751	0.520	0.274	0.291	0.214	2.050	11.482
August	6.270	0.563	1.750	0.167	0.675	9.425	0.920	0.680	0.291	0.138	0.321	2.350	11.775
September	7.343	0.063	3.100	0.140	0.586	11.232	0.971	1.040	0.240	0.298	0.422	2.971	14.203
1st HY - Total	37.405	1.488	12.031	0.944	2.832	54.700	5.269	4.130	1.492	1.253	1.838	13.982	68.682
<i>Average</i>	<i>6.234</i>	<i>0.248</i>	<i>2.005</i>	<i>0.157</i>	<i>0.472</i>	<i>9.117</i>	<i>0.878</i>	<i>0.688</i>	<i>0.249</i>	<i>0.209</i>	<i>0.306</i>	<i>2.330</i>	<i>11.447</i>
October	6.807	0.570	2.010	0.150	0.503	10.040	0.921	0.420	0.282	0.223	0.309	2.155	12.195
November	6.617	0.578	1.840	0.169	0.490	9.694	0.874	1.090	0.213	0.122	0.381	2.680	12.374
December	6.331	0.569	1.980	0.179	0.460	9.519	0.671	0.440	0.224	0.173	0.399	1.907	11.426
January (2005)	5.810	0.571	2.150	0.183	0.480	9.194	0.741	0.470	0.292	0.278	0.371	2.152	11.346
February	6.680	0.377	1.820	0.160	0.470	9.507	0.939	0.480	0.234	0.142	0.392	2.187	11.694
March	6.147	0.572	1.980	0.163	0.480	9.342	0.987	0.470	0.182	0.173	0.324	2.136	11.478
2nd HY - Total	38.392	3.237	11.780	1.004	2.883	57.296	5.133	3.370	1.427	1.111	2.176	13.217	70.513
<i>Average</i>	<i>6.399</i>	<i>0.540</i>	<i>1.963</i>	<i>0.167</i>	<i>0.481</i>	<i>9.549</i>	<i>0.856</i>	<i>0.562</i>	<i>0.238</i>	<i>0.185</i>	<i>0.363</i>	<i>2.203</i>	<i>11.752</i>
FY - Total	75.797	4.725	23.811	1.948	5.715	111.996	10.402	7.500	2.919	2.364	4.014	27.199	139.195
<i>% Share</i>	<i>54.5%</i>	<i>3.4%</i>	<i>17.1%</i>	<i>1.4%</i>	<i>4.1%</i>	<i>80.5%</i>	<i>7.5%</i>	<i>5.4%</i>	<i>2.1%</i>	<i>1.7%</i>	<i>2.9%</i>	<i>19.5%</i>	<i>100.0%</i>

Annex 3.6: Trends in Financial Performance

(Rs. Crores)	1999-00		2000-01		2001-02		2002-03		2003-04		2004-05	
Revenue Account												
Revenue	15.71		18.57		19.75		20.86		26.27		39.49	
Expenditure	34.34		58.65		59.35		57.97		80.81		93.55	
Power Purchase	14.00	40.8%	36.00	61.4%	37.28	62.8%	36.47	66.7%	56.09	66.7%	63.69	66.7%
Arrear Power Bill											6.02	
Establishment	14.53	42.3%	16.71	28.5%	19.13	32.2%	19.99	30.3%	21.70	30.3%	21.80	30.3%
Salaries & Wages	13.91		15.99		17.64		19.20		20.56		21.00	
Pension	na		na		na		na		na		na	
Office Expenses	0.14		0.18		0.27		0.17		0.20		0.11	
Motor Vehicles	0.23		0.20		0.18		0.23		0.35		0.24	
Travel Expenses	0.23		0.23		0.36		0.33		0.40		0.33	
Others	0.03		0.11		0.69		0.06		0.18		0.12	
O & M Expenses	5.81	16.9%	5.94	10.1%	2.94	4.9%	1.51	3.0%	3.02	3.0%	2.04	3.0%
Trans & Distribution	5.31		5.39		2.82		1.51		1.86		1.60	
Service Connection	0.21		0.19		0.00		0.00		0.00		0.33	
Others	0.29		0.36		0.12		0.00		1.16		0.11	
Surplus/(Loss)	(18.62)		(40.08)		(39.60)		(37.11)		(54.55)		(54.06)	
<u>Less:</u>												
Depreciation	na		na		na		na		na		na	
Interest (REC/PFC)	16.54		16.25		18.6		22.76		17.64		17.31	
Net Profit/(Loss)	(35.16)		(56.33)		(58.20)		(59.87)		(72.19)		(71.37)	
Capital Account												
Generation	13.48		5.19		12.67		3.80		1.83		3.50	
Trans & Distribution	4.54		9.93		8.30		47.63		28.45		17.83	
Rural Electrification	7.09		7.09		7.75		6.97		18.64		6.25	
REC Loan	7.09		7.09		2.84		3.68		11.22		0.00	
PMGY (Grant)	0.00		0.00		4.53		3.29		6.25		6.25	
NABARD Loan	0.00		0.00		0.00		0.00		0.82		0.00	
PM Package (Grant)	0.00		0.00		0.38		0.00		0.35		0.00	
Kutir Jyoti	0.00		1.99		0.79		0.00		1.44		0.00	
PFC Loan	10.73		28.57		21.48		6.90		0.60		3.92	
APDRP Schemes	0.00		0.00		1.89		8.21		10.47		5.00	
Civil Works	0.08		0.08		0.08		0.00		0.00		0.00	
NEC	0.00		0.00		0.00		0.00		0.17		0.00	
Total	35.93		52.85		52.95		73.50		61.61		36.50	

Source: Budget Documents & DoP

na: not available

Annex 3.7: Division-Wise Energy Accounting & Operating Losses

	DIMAPUR CIRCLE						MOKOKCHUNG CIRCLE						CE Office	TOTAL
	Dimapur (Elec)	Dimapur (Trans)	Kohima (Elec)	Wokha (Elec)	Phek (Elec)	Sub-Total	Mokokchung (Elec)	Tuensang (Elec)	Changtongia (Elec)	Mon (Elec)	Zunheboto (Elec)	Sub-Total		
ENERGY ACCOUNTING														
<i>As on 31 March 2004</i>														
No. of 11 KV Feeders	20	15	25	18	13	91	10	16	18	12	17	73		164
Feeders with Electronic Meters	7	2	15	18	6	48	8	11		8		27		75
% metered	35%	13%	60%	100%	46%	53%	80%	69%	0%	0%	47%	37%		46%
Length of 11 KV Lines (Km)	534	422	285	560	510	2311	560	705	330	534	525	2654		4965
<i>Financial Year 2003-04</i>														
Share in total energy input:														
First-half year*	45.2%	4.2%	22.0%	3.3%	2.0%	76.8%	6.6%	9.6%	1.7%	3.7%	1.6%	23.2%		100%
Second-half year*	41.1%	4.2%	31.0%	2.9%	2.0%	79.1%	5.0%	8.9%	1.1%	2.8%	1.0%	20.9%		100%
T & D Loss	51.3%	85.9%	71.4%	54.8%	53.7%	60.2%	56.3%	31.3%	89.9%	78.3%	58.7%	51.0%		58.3%
Collection Efficiency	80.6%	86.9%	93.7%	81.4%	107.7%	84.8%	77.4%	10.9%	49.5%	95.1%	130.2%	40.5%		73.5%
AT&C Loss	60.8%	87.7%	73.2%	63.3%	50.1%	66.2%	66.2%	92.5%	95.0%	79.4%	46.2%	80.2%		69.3%
FINANCIAL PERFORMANCE (Amount in Rs. Lacs) - 2003-04														
Revenue against sale of Power	1,341.83	56.66	561.51	46.99	72.43	2,079.42	138.48	60.37	45.09	64.79	52.40	361.13	189.00	2,629.55
Total Income	1,341.83	56.66	561.51	46.99	72.43	2,079.42	138.48	60.37	45.09	64.79	52.40	361.13	189.00	2,629.55
Power Purchase	2,219.55	217.51	1,389.88	160.66	103.18	4,090.79	296.79	477.70	72.70	165.72	65.18	1,078.08	0.00	5,168.87
Establishment	212.16	142.87	219.68	92.26	92.77	759.74	199.55	148.27	139.06	82.20	104.21	673.29	734.52	2,167.55
Salary & wages	202.81	137.78	214.28	89.38	90.71	734.96	195.10	144.21	136.36	77.73	100.11	653.51	666.52	2,054.99
Motor Vehicles	3.85	1.70	3.12	0.96	1.38	11.01	2.48	2.01	1.13	1.73	1.70	9.05	14.94	35.00
Travel Expenses	1.55	1.30	1.30	1.30	0.30	5.75	1.50	1.60	1.20	1.45	1.45	7.20	26.05	39.00
Office Expenses	2.60	1.87	0.60	0.38	0.38	5.83	0.47	0.45	0.37	0.39	0.42	2.10	12.17	20.10
Other Expenses	1.35	0.22	0.38	0.24	0.00	2.19	0.00	0.00	0.00	0.90	0.53	1.43	14.84	18.46
Repairs & Maintenance	29.01	19.14	18.97	4.45	4.67	76.24	7.81	7.65	5.38	5.76	4.75	31.35	0.00	107.59
Total Expenditure	2,460.72	379.52	1,628.53	257.37	200.62	4,926.77	504.15	633.62	217.14	253.68	174.14	1,782.72	734.52	7,444.01
Operating Loss	1,118.89	322.86	1,067.02	210.38	128.19	2,847.35	365.67	573.25	172.05	188.89	121.74	1,421.59	545.52	4,814.46

* Energy input during 2003-04: 1st HY 45.66% 2nd HY 54.34%

Source of Data: DoP

Annex 3.8: Performance Rating

Rank	State	State Govt.	SERC	Generation	T&D	Financial Risk	Others	Commercial Viability	Total
1	Andhra Pradesh	8.2	12.38	4.75	11.75	12.5	4.25	3.2	57.03
2	Gujarat	12.26	6.5	3.25	11.4	12.25	3.75	4.2	53.61
3	Delhi	12.88	10.88	2.25	11.65	10	4.25	0	51.91
4	Karnataka	9.73	9.25	5	10.5	9.13	3.25	4.6	51.46
5	Tamil Nadu	6.21	8.75	4	12.9	11.63	3.25	4.2	50.94
6	Goa	6.9	0	0	14.55	12.5	2.5	14	50.45
7	Himachal Pradesh	6.6	5	4	10.38	11.13	3	9.8	49.91
8	West Bengal	3.4	8.25	1.5	11.95	8.25	3.25	8	44.6
9	Uttar Pradesh	8.96	10.25	2.25	7.8	7.63	3.25	2	42.14
10	Chattisgarh	3.98	0.5	3.25	6.3	9.38	0.5	16	39.91
11	Rajasthan	8.52	8.25	4.5	4.98	8.25	3	0	37.5
12	Maharashtra	2.75	7.75	5	5.7	8.75	3.5	3.8	37.25
13	Punjab	3.54	5	4.5	9.1	5.13	0.25	9.3	36.82
14	Haryana	9.4	8.13	3.5	5.25	6.38	2.5	0	35.16
15	Tripura	7.55	0	1.5	6	8	1	7.6	31.65
16	Kerala	3.75	4.25	1.25	12.13	5	3.5	1.6	31.48
17	Assam	6.42	7.9	0.5	5.5	3	2	2	27.32
18	Meghalaya	3.17	0	2	9.5	3.75	2.5	5.8	26.72
19	Madhya Pradesh	5.54	9.25	4.25	3.25	0	0.5	0	22.79
20	Sikkim	8.34	-2.5	0.75	1.13	5.75	1	4.6	19.07
21	Uttaranchal	5.9	6.25	1	2.95	2.5	0	0	18.6
22	Nagaland	6.8	-2.5	0	2.25	7.25	1	1	15.8
23	Orissa	2	5.63	1.5	2.5	2	0	0	13.63
24	Jammu & Kashmir	7.8	0	0.75	0.63	0	0.25	0	9.43
25	Arunachal Pradesh	2.6	-2.5	0	0	5	0.5	3.6	9.2
26	Mizoram	4	-2.5	0.5	4.88	0	1	0	7.88
27	Manipur	5.8	-2.5	1.25	0.5	0	1.5	0	6.55
28	Bihar	0.3	0	0.25	1.73	2	1.25	0	5.53
29	Jharkhand	0	3	0	0	0	0	0	3

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Source: Power Sector Rating, Consolidated Report to the Ministry of Power, ICRA & CRISIL, March 2005.

Annex to Chapter 5

Annex 5.1: SPM Billing and Collection in Dimapur Division

Dimapur Division					SPM Billing															
Sl. No.	Village	Useful Points or Metered	No. of House Holds	No. of Cons.	Oct-03		Nov-03		Dec-03		Jan-04		Feb-04		Mar-04		Apr-04		May-04	
					Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.
1	Toulozouma	U	200	90							5,000	8,000	3,800	6,080	4,200	6,720	3,800	6,080	4,400	7,040
2	Toluvi	U	81	81	17,000	27,200	19,500	31,200	22,200	35,520	20,700	33,120	8,800	14,080	14,300	22,880	18,600	29,760	21,700	29,760
3	Zani	U	29	29	3,650	5,840	5,100	8,160	4,950	7,920	4,000	6,400	2,300	3,680	2,250	3,600	2,200	3,520	2,750	3,520
4	Shozukhu	U	25	25	3,000	4,800	4,000	6,400	5,700	9,120	4,250	6,800	2,700	4,320	3,350	5,360	3,550	5,680	4,500	5,680
5	L.Hotovi	U	24	24	5,100	8,160	5,200	8,320	7,572	12,115	5,650	9,040	4,100	6,560	4,000	6,400	3,600	5,760	4,200	5,760
6	Sietheke Basa	U	84	70	6,890	11,024	6,510	10,416	5,400	8,640	6,440	10,304	4,467	71,472	5,222	8,355	3,426	5,482	5,492	8,787
7	Shitoi	U	36	18	3,600	5,760	4,000	6,400	6,000	9,600	3,600	5,760	2,800	4,480	2,300	3,680	1,400	2,240	900	1,440
8	Shokhuvi	U	100	71			4,600	7,360	3,500	5,600	5,400	8,640	3,700	5,920	4,700	7,520	4,100	6,560	5,900	9,440
9	Zukihe	U	55	50	3,100	4,960	3,400	5,440	8,280	13,248	2,100	3,360	1,700	2,720	1,900	3,040	1,900	3,040	2,000	3,200
10	Piehikhu	U	48	30	5,051	8,816	7,587	12,139	4,700	7,520	5,649	9,038	3,847	6,155	2,936	4,698			3,059	4,894
11	Heyishe	U	52	30	3,200	5,120	4,300	6,880	13,400	21,440	2,600	4,160	2,200	3,520	2,600	4,160	2,400	3,840	2,300	3,680
12	Khehokhu	U	95	60	8,600	13,760	11,400	18,240	3,209	5,134	11,400	18,240	6,000	9,600	8,700	13,920	8,100	12,960	8,800	14,080
13	Henivi	U	55	50	2,213	35,408	4,465	7,144	4,435	7,096	2,720	4,352	1,859	2,974	1,741	2,786	1,071	1,714	983	1,573
14	Vidima	U	70	40	1,539	26,624	3,115	4,984	2,300	3,680	4,389	7,022	3,202	5,123	3,519	5,630	2,907	4,651	3,824	6,118
15	Xekiye	U	40	36	3,200	5,120	2,500	4,000	9,200	14,720	1,800	2,880	1,300	2,080	1,300	2,080	900	1,440	1,300	2,080
16	Hoito	U	50	32	2,700	4,320	5,300	8,480			7,000	11,200	3,500	5,000	5,300	8,480	2,800	4,480	1,400	2,240
17	Zuvukhu	U	15	10							950	1,520	450	720	800	1,280	500	800	500	800
Sl. No.	Village	Amount Paid (Rs.)				Total (Rs.)			Monthly Bill (Rs.)			Average Pre-SPM Billing		Average Post-SPM Billing		% Increase				
		Sept '03 to Feb '04	Mar '04	April '04	May '04	Billed	Paid	Collection	Pre-SPM	Post-SPM	Increase	Rs.	Rs.							
1	Toulozouma		8,750			33,920	8,750	26%				6,784		62,268						
2	Toluvi		29,150		35,749	223,520	64,899	29%				22,142	27,940	26%	134,876					
3	Zani		35,020		4,075	42,640	39,095	92%				5,251	5,330	2%	117%					
4	Shozukhu		5,050		10,000	48,160	15,050	31%				4,360	6,020	38%						
5	L.Hotovi		8,410		12,375	62,115	20,785	33%				3,476	7,764	123%						
6	Sietheke Basa		12,846		4,040	134,480	16,886	13%				8,096	16,810	108%						
7	Shitoi		10,934		8,576	39,360	19,510	50%				624	4,920	688%						
8	Shokhuvi		15,110			51,040	15,110	30%				4,906	7,291	49%						
9	Zukihe		17,610		7,500	39,008	25,110	64%				1,935	4,876	152%						
10	Piehikhu		8,836		13,000	53,260	21,836	41%				978	7,609	678%						
11	Heyishe		25,370		460	52,800	25,830	49%				942	6,600	601%						
12	Khehokhu		11,000			105,934	11,000	10%				3,196	13,242	314%						
13	Henivi		11,510		773	63,047	12,283	19%				840	7,881	838%						
14	Vidima		7,946		12,500	63,832	20,446	32%				2,889	7,979	176%						
15	Xekiye		8,770		5,925	34,400	14,695	43%				1,398	4,300	208%						
16	Hoito		4,570		16,000	44,200	20,570	47%				1,235	6,314	411%						
17	Zuvukhu		2,770		1,530	5,120	4,300	84%					1,024							

Annex 5.2: (Contd.)

Mokokchung Division (II)					SPM Billing																	
Sl. No.	Village	Points or Metered	House Holds	No. of Cons.	Sep-03		Oct-03		Nov-03		Dec-03		Jan-04		Feb-04		Mar-04		Apr-04		May-04	
					Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.
1	Changkli	U	1316	886			15054	24146	150537	24146	15873	25456	15873	25456	15373	24656	15373	24656	15373	24656	15373	24656
2	Moayimti	U	151	144			3038	4875	3043	4884	32095	5135	32095	5135	3210	5135	3108	4988	5110	8191	4315	6919
3	Debuia	U	834	324			2396	3848	2396	3848	2665	4279	2665	4279	2665	4279	2665	4279	2237	3594	28625	4595
4	Debuia Compound	U	84	63			1648	2652	1651	2657	1560	2511	1560	2511	1558	2508	1760	2831	1760	2831	1980	3183
5	Monchen	U	57	37			922	1,491	1,570	2,527	1,670	2,688	1,800	2,895	1,148	1,851	1,530	2,465	1,050	1,695	790	1,279
6	Japu	U	84	37			1,580	2,343	2,330	3,743	2,491	4,000	1,800	2,895	4,349	6,974	2,430	3,903	2,440	3,919	1,490	2,399
7	Khar	U	598	363							12,000	19,215	11,212	17,954	7,844	12,566	10,088	16,155	9,209	14,749	10,693	17,124
8	Woromong	U	70	51									6,600	10,575	5,910	9,471	6,000	9,615	6,015	9,639	4,605	7,383
9	Woromong Compound	U	561	362									1,073	1,732	270	447			560	926	175	295
10	Yajang 'A'	U	216	175											1,110	1,791	600	975			1,020	1,647
11	Nokpu	U	63	47											3,370	5,407	3,350	5,375	2,900	4,655	2,000	3,215
12	Chunliyimsen	U	49	31											24,375	3,915	2,696	4,328	2,565	4,119	1,751	2,816
13	Longpha	U	519	357													2,470	3,967	3,908	6,267	2,470	3,967
14	Longpha Compound	U	524	326													260	431	260	431	260	431
15	Lakhuni	U	371	276													4,000	6,415			5,900	9,471
16	Changdang	U	347	274																	2,364	3,797
17	Aonokpu	U	49	39														1,600	2,575		2,583	4,163
18	Lirmen	U	359	263														1,600	2,287		6,898	11,067
19	Alonglenden	U	98	54														319	525		1,741	2,817
20	Yajang Compound	U	36	21														4,880	6,581		10,033	16,083
21	Tsurmen	U	96	65														991	1,601		359	605
22	Aonokpuyimsen	U	164	98														300	495		123	226
Sl. No.	Village	Amount Paid (Rs.)								Total (Rs.)			Monthly Bill (Rs.)			%	Rs.					
		Oct '03	Nov '03	Dec '03	Jan '04	Feb '04	Mar '04	April '04	May '04	Billed	Paid	Collection	Pre-SPM	Post-SPM	Inc.							
1	Changkli	24,146	24,146	25,456	25,456	24,656	24,656	24,656	24,656	197,828	197,828	100%	23,000	24,729	8%							
2	Moayimti	4,875	4,884	5,135	5,135	5,135	4,988			45,262	30,152	67%	4,145	5,658	36%							
3	Debuia	3,848	3,848	4,279	4,279	4,279	4,279	3,594		33,001	28,406	86%	4,400	4,125	-6%							
4	Debuia Compound	2,652	2,657	2,511	2,511	2,508	2,831	2,831		21,684	18,501	85%	3,000	2,711	-10%							
5	Monchen	1,491	2,527	2,688	2,895	1,851	2,463	1,695	1,279	16,891	16,889	100%	4,887	2,111	-57%							
6	Japu	2,343	3,743	4,000	2,895	6,974				30,176	19,955	66%	4,000	3,772	-6%							
7	Khar			19,215	17,954	12,566	16,155	14,749	17,124	97,763	97,763	100%	15,323	16,294	0.0634							
8	Woromong				10,575	9,471				46,683	20,046	43%	9,298	9,337	0%							
9	Woromong Compound				1,732	447				3,400	2,179	64%	1,962	680	-65%							
10	Yajang 'A'					1,791	975			4,413	2,766	63%		1,103								
11	Nokpu					5,407	5,375	4,655	3,215	18,652	18,652	100%		4,663								
12	Chunliyimsen					3,915		4,119	2,816	15,178	10,850	71%		3,795								
13	Longpha									14,201	0	0%	3,700	4,734	28%							
14	Longpha Compound									1,293	0	0%		431								
15	Lakhuni						6,415			15,886	6,415	40%		5,295								
16	Changdang									3,797	0	0%		3,797								
17	Aonokpu									6,738	0	0%		2,246								
18	Lirmen						2,287			13,354	2,287	17%		4,451								
19	Alonglenden						525			3,342	525	16%		1,114								
20	Yajang Compound						6,581			22,664	6,581	29%		7,555								
21	Tsurmen									2,206	0	0%		735								
22	Aonokpuyimsen									721	0	0%		240								

Annex 5.2: (Contd.)

Mokokchung Division (II - contd.)					SPM Billing																		
Sl. No.	Village	Points or Metered	House Holds	No. of Cons.	Sep-03		Oct-03		Nov-03		Dec-03		Jan-04		Feb-04		Mar-04		Apr-04		May-04		
					Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units
23	Longjemdand	U	93	83														1,840	2,959	1,490	2,399		
24	Aosenden	U	42	21													725	1,175	1,209	1,950	725	1,175	
25	Aokum	U	30	18													585	951	585	951	1,121	1,809	
26	Tsuta Gate	U	14	10													345	567	325	665	325	665	
27	Athuphumi	U	50	20																	1,205	1,943	
28	Zong Valley	U	17	12													390	639	390	639	390	639	
29	Satsuk	U	62	35													895	1,447	1,790	2,897	1,100	1,775	
30	Aghahigha	U	52	43													1,110	1,792					
31	Khaktito -I	U	39	23													748	1,211	748	1,211	748	1,211	
32	Khaktito -II	U	8	4													130	223	195	325	98	171	
33	Azuhoto Old	U	5	2													69	125	65	119	65	119	
34	Azuhoto New	U	31	12													390	639	390	639	390	639	
35	Shaphumi	U	34	21													683	1,107	1,138	1,835	1,600	2,575	
36	Puniboto	U	7	6													218	364	195	327	2,275	379	
37	Sumito	U	13	8															260	431			
38	Korayong (Tsurang)	U	36	22													553	899	553	899	553	899	
39	Longtho-I	U	28	26													571	928	571	928	1,538	2,475	
40	Longtho-II	U	7	3																			
41	Longtho-III	U	2	2													168	283			96	168	
42	Aosumkum	U	18	12													390	639					
43	Medemyim	U	87	45																2,235	3,591	1,570	2,527
44	Saring	U	160	62																	669	1,085	
45	Nokpu Old	U	12	9																	283	468	
Sl. No.	Village	Amount Paid (Rs.)						Total (Rs.)			Monthly Bill (Rs.)		% Inc.	Rs.									
		Oct '03	Nov '03	Dec '03	Jan '04	Feb '04	Mar '04	April '04	May '04	Billed	Paid	Collection			Pre-SPM	Post-SPM							
23	Longjemdand							2959	2399	5,358	5,358	100%											
24	Aosenden							1175	1950	1175	4,300	4,300	100%										
25	Aokum										3,711	0	0%										
26	Tsuta Gate							567	665		1,897	1,232	65%										
27	Athuphumi										1,943	0	0%										
28	Zong Valley							639	639	639	1,917	1,917	100%										
29	Satsuk							1447			6,119	1,447	24%										
30	Aghahigha							1792			1,792	1,792	100%										
31	Khaktito -I										3,633	0	0%										
32	Khaktito -II										719	0	0%										
33	Azuhoto Old										363	0	0%										
34	Azuhoto New										1,917	0	0%										
35	Shaphumi							1107			5,517	1,107	20%										
36	Puniboto							364			1,070	364	34%										
37	Sumito										431	0	0%										
38	Korayong (Tsurang)							899	899		2,697	1,798	67%										
39	Longtho-I							928	928		4,331	1,856	43%										
40	Longtho-II										0	0											
41	Longtho-III							283			451	283	63%										
42	Aosumkum							639			639	639	100%										
43	Medemyim							3591	2527		6,118	6,118	100%										
44	Saring										1,085	0	0%										
45	Nokpu Old										468	0	0%										

Total Pre-SPM Billing	73,715
Total Post-SPM Billing	74,149
% Increase	1%

Total no. of households	7,493
Total no. of consumers	4,792
as % of households	64%

Bill per consumer per month (kwh)		
Average	Max	Min
44	253	1

Revenue collection		
Average	Max	Min
71%	100%	0%

Annex 5.3: SPM Billing and Collection in Kohima Division

Kohima Division

					SPM Billing																	
Sl. No.	Village	Useful Points or Metered	No. of House Holds	No. of Cons.	Sep-03		Oct-03		Nov-03		Dec-03		Jan-04		Feb-04		Mar-04		Apr-04		May-04	
					Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.	Units	Rs.
1	Khuzama	M	374	312	21,240	34,014	25,560	40,926	26,740	42,784	36,480	58,368	17,360	27,806	26,560	42,526			46,160	73,916		
2	Kezo Basa	U	64	24	1,575	2,525	935	1,496	1,070	1,717	2,000	3,205	755	1,213	695	1,117	690	1,109				
3	Kijuietouma old	U	56	27	582	946	51	97	601	976	946	1,529	925	1,495			1,131	1,825	1,131	1,825		
4	Tseisema Old	U	120	109					7,985	12,776	4,958	7,933	3,857	6,171	3,248	5,197	2,525	4,072				
5	Tseisema New	U	60	40	677	1,098	738	1,180	791	1,280	1,697	2,730	1,785	2,871	865	1,399	689	1,117	732	1,186		
6	Ziezou	U	50	24	1,240	1,989	1,420	2,277	1,260	2,021	2,970	4,757	2,240	3,589	1,800	2,885						
7	Phekerkrie Basa	U	20	15									248	402	772	1,240						
8	Nerhima	U	215	113	2,640	4,239	3,080	4,943	3,160	5,071	4,840	7,759	4,040	6,479	4,000	6,415	3,360	5,391	3,480	5,583		
9	Garephima	U	140	60	2,911	4,785	3,616	5,786	4,277	6,843	2,830	4,528	4,977	7,963	3,145	5,032	1,996	3,194	1,225	2,083		
10	Henbeju	M	22	19	740	1,199	656	1,065	557	906	643	1,029	444	725	392	642	289	477	325	535		
11	Pleize'A'	U	8	7					4,417	7,067	1,761	2,818	1,523	2,437	1,315	2,104	815	1,304	897	1,525		
12	Dzulakie	U	15	9	525	845	495	807	480	783					1,995	3,237	600	975	630	1,023	615	999
13	Sechuma	U	45	34	1,350	2,175	760	1,231	980	1,583	1,210	1,951			1,930	3,103	720	1,167	700	1,135	710	1,151
Sl. No.	Village	Amount Paid (Rs.)								Total (Rs.)			Monthly Bill (Rs.)		% Inc.	Rs.						
		Sept '03	Oct '03	Nov '03	Dec '03	Jan '04	Feb '04	Mar '04	April '04	Billed	Paid	Collection	Pre-SPM	Post-SPM		Total Pre-SPM Billing	Total Post-SPM Billing					
1	Khuzama									320,340	0	0%	16,500	40,043	25,088	51,096						
2	Kezo Basa								12,489	12,382	12,489	101%	1,155	1,769	1,189	1,793						
3	Kijuietouma old			1,136					976	8,691	2,112	24%	1,050	1,086	793	1,086						
4	Tseisema Old							12,900	11,300	36,149	24,200	67%		7,230	1,189	793						
5	Tseisema New					1,280		2,730	4,270	12,862	8,280	64%		1,608	793	793						
6	Ziezou		1,989	2,277				4,757		17,518	9,023	52%		2,920	67%	67%						
7	Phekerkrie Basa									1,642	0	0%		821								
8	Nerhima		201	3,600	3,500				5,350	45,880	12,651	28%	4,200	5,735								
9	Garephima							4,785	5,785	40,213	16,535	41%		5,027								
10	Henbeju		1,199	1,064	906	1,043	642	477		6,579	5,973	91%		822								
11	Pleize'A'						7,067	7,358		17,254	14,425	84%		2,876								
12	Dzulakie	845								8,669	845	10%	741	963								
13	Sechuma	2175	1231	1583	1951	3103				13,496	10,043	74%	1,442	1,500								
Revenue collection																Average	Max	Min				
																22%	101%	0%				

Annex 5.4: Select Villages for SPM Implementation (Phase II)

Sl. No.	Rank	Name of Recognised Village	Districts	Sub- Districts	No. of households
1	2	Diphupar 'A'	Dimapur	Chumukedima	1621
2	3	Purana Bazar 'A'	Dimapur	Chumukedima	1374
3	6	Nagarjan	Dimapur	Dimapur	1203
4	22	Thahekhu	Dimapur	Dimapur	756
5	42	Nahabari	Dimapur	Chumukedima	620
6	46	Industrial (Razhuphe)	Dimapur	Dimapur	605
7	49	Tenyiphe II	Dimapur	Chumukedima	600
8	58	Tenyiphe I	Dimapur	Chumukedima	567
9	65	Diphupar 'B'	Dimapur	Chumukedima	536
10	77	Padampukhuri	Dimapur	Chumukedima	487
11	82	Nihokhu	Dimapur	Nihokhu	471
12	85	Seithekei 'C'	Dimapur	Chumukedima	461
13	97	Sovima	Dimapur	Chumukedima	443
14	98	Signal Angami	Dimapur	Dimapur	442
15	103	Chumukedima Village	Dimapur	Chumukedima	427
16	106	Chekiye	Dimapur	Chumukedima	421
17	135	Kushiabil	Dimapur	Chumukedima	364
18	1	Kohima	Kohima	Kohima	2397
19	9	Viswema Village	Kohima	Jakhama	1027
20	18	Tesophenyu	Kohima	Tseminyu	778
21	41	Jotsoma Village	Kohima	Secu	622
22	47	Chiechama Village	Kohima	Chiephobozou	605
23	50	Khonoma Village	Kohima	Secu	600
24	57	Phesama Village	Kohima	Jakhama	569
25	64	Kedima Village	Kohima	Kezocha	542
26	69	Samziuram	Kohima	Jalukie	523
27	89	Tuophema Village	Kohima	Chiephobozou	452
28	92	Poilwa	Kohima	Ngwalwa	450
29	95	Kigwema Village	Kohima	Jakhama	447
30	105	Tening Village	Kohima	Tening	422
31	107	Secu Zubza	Kohima	Secu	421
32	115	Rusoma	Kohima	Chiephobozou	409
33	119	Jakhama Village	Kohima	Jakhama	405
34	128	Kiruma (Zhadima)	Kohima	Chiephobozou	388
35	132	Tseminyu Village	Kohima	Tseminyu	371
36	133	Jalukiejangdi	Kohima	Jalukie	370
37	138	Chedema	Kohima	Kohima	354
38	142	Nsunyu	Kohima	Tseminyu	347
39	148	Beisumpuikam	Kohima	Athibung	340
40	14	Lonjang	Mokokchung	Kubolong	878
41	21	Sungratsu	Mokokchung	Kubolong	770
42	24	Mopungchukit	Mokokchung	Kubolong	731
43	34	Chuchuyimlang Village	Mokokchung	Chuchuyimlang	670
44	44	Molungyimsen (including Luyong)	Mokokchung	Alongkima	619
45	60	Kangtsung	Mokokchung	Tuli	550
46	73	Merangkong Village	Mokokchung	Tuli	507
47	75	Changtongya (Old)	Mokokchung	Changtongya	495
48	79	Yaongyimsen Village	Mokokchung	Changtongya	480
49	83	Mongsenyimti	Mokokchung	Chuchuyimlang	471
50	100	Molungkimong	Mokokchung	Alongkima	432

Annex 5.4: (Contd.)

Sl. No.	Rank	Name of Recognised Village	Districts	Sub- Districts	No. of households
51	5	Tanhai Village	Mon	Wakching	1214
52	7	Tizit Village	Mon	Tizit	1111
53	23	Wakching Village	Mon	Wakching	743
54	28	Tizit HQ	Mon	Tizit	710
55	33	Monyakshu Village	Mon	Monyakshu	680
56	35	Lapa Lampong	Mon	Tizit	666
57	39	Tobu Village	Mon	Tobu	632
58	40	Angphang Village	Mon	Longching	625
59	51	Chenmoho Village	Mon	Chen	600
60	52	Jakphang Village	Mon	Longching	596
61	53	Pessao Village	Mon	Monyakshu	595
62	54	Longching Village	Mon	Longching	591
63	55	Chenloishu Village	Mon	Chen	580
64	59	Wanching Village	Mon	Wakching	551
65	74	Changlangshu Village	Mon	Monyakshu	499
66	78	Longwa Village	Mon	Phomching	481
67	88	Shamnyu Village	Mon	Tobu	456
68	94	Tamkong Village	Mon	Tobu	449
69	101	Chingkaochingnyu	Mon	Chen	431
70	108	Tangnyu Village	Mon	Longshen	418
71	110	Shiyong Village	Mon	Wakching	414
72	114	Yakshu Village	Mon	Mopong	412
73	118	Yongkhao Village	Mon	Monyakshu	408
74	121	Chenwetnyu Village	Mon	Chen	403
75	126	Totok Chingnyu Village	Mon	Mon	393
76	127	Shangnyu Village	Mon	Shangnyu	393
77	130	Yonghong Village	Mon	Mopong	381
78	140	Ukha Villag	Mon	Mopong	353
79	143	Chaohachingnyu Village	Mon	Aboi	347
80	146	Sheangha Chingnyu Village	Mon	Longshen	342
81	8	Kikruma	Phek	Pfutsero	1038
82	10	Phusachodu	Phek	Pfutsero	1021
83	26	Porba	Phek	Sakraba	715
84	30	Khezhakeno Village	Phek	Khezhakeno	702
85	37	Zhamai	Phek	Chizami	643
86	48	Phek Village	Phek	Phek	601
87	61	Pfutseromi	Phek	Pfutsero	550
88	62	Ruzazho	Phek	Sekrezu	545
89	80	Yoruba	Phek	Chozuba	480
90	86	Chozuba Village	Phek	Chozuba	460
91	90	Dzulhami	Phek	Sekrezu	451
92	93	Chozuba Town	Phek	Chozuba	450
93	99	Thetsumi	Phek	Chizami	433
94	102	Chesezu	Phek	Chetheba	431
95	109	Lozaphuhu	Phek	Phek	417
96	120	Ketsapo	Phek	Phek	404
97	123	Losami	Phek	Phek	401
98	124	Thevopisu	Phek	Chozuba	400
99	134	Meluri Village	Phek	Meluri	365
100	4	Tuensang Village	Tuensang	Tuensang	1224

Annex 5.4: (Contd.)

Sl. No.	Rank	Name of Recognised Village	Districts	Sub- Districts	No. of households
101	11	Yachem	Tuensang	Longleng	995
102	12	Yongya Village	Tuensang	Yongya	950
103	15	Pongo	Tuensang	Sakchi	808
104	19	Nian	Tuensang	Yongya	777
105	20	B/Namsang	Tuensang	Tamlu	771
106	25	Noklak Village	Tuensang	Noklak	719
107	27	Hukpang	Tuensang	Longleng	712
108	29	Bhumnyu	Tuensang	Longleng	703
109	31	Tangha	Tuensang	Yongya	692
110	32	Chessore Village	Tuensang	Chessore	688
111	36	Yongshei	Tuensang	Yongya	644
112	38	Chimonger	Tuensang	Longkhim	638
113	43	Tamlu Village	Tuensang	Tamlu	620
114	45	Sotokur	Tuensang	Tuensang	618
115	66	Sakchi Village	Tuensang	Sakchi	535
116	67	Orangkong	Tuensang	Longleng	531
117	68	Phenunger	Tuensang	Kiphire	527
118	70	Sangphur	Tuensang	Shamator	523
119	71	Yaongyimchen	Tuensang	Longleng	521
120	76	Yangpi	Tuensang	Noksen	491
121	81	Kisedong	Tuensang	Amahator	478
122	84	Yangzitong	Tuensang	Seyochung	463
123	91	Panso 'B'	Tuensang	Panso	451
124	96	Pongching	Tuensang	Longleng	444
125	111	Auching	Tuensang	Sakchi	414
126	112	Yongphang	Tuensang	Sakchi	413
127	113	Yongam	Tuensang	Yongya	413
128	116	Kuthur	Tuensang	Tuensang	409
129	122	Kangching	Tuensang	Tamlu	402
130	129	Phisami	Tuensang	Seyochung	384
131	131	Nokhu	Tuensang	Noklak	381
132	136	Huker	Tuensang	Chessore	360
133	139	Chingmai	Tuensang	Noklak	354
134	141	Kiphire Village	Tuensang	Kiphire	350
135	144	Angangba	Tuensang	Longkhim	347
136	145	Sanglo Nokye	Tuensang	Thonoknyu	345
137	147	Chingmelen	Tuensang	Tuensang	342
138	13	Lakhuti Village	Wokha	Aitepyong	910
139	17	Pangti Village	Wokha	Sungro	796
140	56	Wokha Village	Wokha	Wokha	573
141	63	Akuk Old Village	Wokha	Aitepyong	544
142	72	Longsa Village	Wokha	Wokha	511
143	87	Phiro Village	Wokha	Wozhuro	460
144	125	Mekokla Village	Wokha	Aitepyong	398
145	137	Okotso Village	Wokha	Sungro	358
146	16	Lazami Village	Zunheboto	Pughoboto	806
147	104	Mishili Village	Zunheboto	Pughoboto	426
148	117	Shena Old Village	Zunheboto	Satakha	409
				Total	85,449

Annex to Chapter 6

Annex 6.1: Status of Power Sector Reform in States

State	Status
Andhra Pradesh	SERC constituted, functional, Tariff orders issued, Reform Law enacted, SEB unbundled, Distribution privatization strategy being finalized, MOU signed with Government of India, Anti-theft law passed
Arunachal Pradesh	MOU signed with Government of India
Assam	SERC constituted, functional, Tariff Order issued, MOU signed with Government of India
Bihar	MOU signed with Government of India, SERC constituted, Anti-theft law passed
Chhattisgarh	MOU signed with Government of India, SERC constituted
Delhi	SERC constituted, functional, Tariff order issued, Reform Law enacted, DVB unbundled, Distribution privatized
Gujarat	SERC constituted, functional, tariff order issued, Reform law enacted, Anti-theft law enacted, MOU signed with Government of India
Goa	MOU signed with Government of India, SERC constituted
Haryana	SERC constituted, functional, Tariff Orders issued, Reform Law enacted, SEB unbundled, MOU signed with Government of India
Himachal Pradesh	SERC constituted functional Tariff order issued MOU signed with Government of India
Jammu & Kashmir	Reform Bill passed by State Assembly MOU signed with Government of India
Jharkhand	MOU signed with Government of India SERC notified Tariff Order issued
Karnataka	SERC constituted, functional Tariff Order issued Reform Law enacted, SEB unbundled MOU signed with Government of India Anti-theft law passed
Kerala	SERC constituted MOU signed with Government of India Anti-theft law passed Tariff Order issued
Madhya Pradesh	SERC constituted, functional Tariff order issued Reform Law enacted MOU signed with Government of India SEB Unbundled Anti-theft law passed
Maharashtra	SERC constituted, functional Tariff order issued MOU signed with Government of India Anti-theft law passed

	MSEB is restructured into four companies w.e.f from 06.06.2005. These companies are: (1) MSEB Holding Co. Ltd.; (2) Maharashtra State Power generation co. Ltd.; (3) Maharashtra state transmission Co. Ltd.; and (4) Maharashtra State Distribution Co. Ltd.
Orissa	SERC functional Tariff orders issued Reform Law enacted SEB unbundled Distribution Privatized MOU signed with Government of India
Punjab	SERC constituted, functional Tariff Order issued MOU signed with Government of India
Rajasthan	SERC constituted, functional Tariff order issued Reform Law enacted SEB unbundled. MOU signed with Government of India
Tamil Nadu	SERC constituted, functional Tariff Order issued MOU signed with Government of India
Uttar Pradesh	SERC constituted, functional Tariff order issued Reform Law enacted SEB unbundled. MOU signed with Government of India Anti-theft law passed
Uttaranchal	MOU signed with Government of India SERC constituted SEB unbundled Tariff order issued
West Bengal	SERC constituted Tariff order issued MOU signed with Government of India Anti-theft law passed
Nagaland/Meghalaya/ Mizoram/Manipur/Tripura Sikkim	North Eastern States have shown willingness to constitute Joint Electricity Regulatory Commission(JERC) Mizoram and Manipur are in the process of constituting JERC Tripura has notified the constitution of SERC Nagaland, Meghalaya, Mizoram, Tripura and Sikkim have signed MOU with Government of India
Source: Ministry of Power, GOI	

Annex 6.2: List of Villages without Water & Electricity

Sl. No.	District/Sub-Division	Name of Village	No. of Farming Households	Electrified (Y/N)	Water (Y/N)
1	TSEMINYU	KHONIBENZO	40	N	N
2	JALUKIE	SONGSANG	28	N	N
3	JALUKIE	GOPIBUNG	20	N	N
4	JALUKIE	BUNGLEIN	18	N	N
5	JALUKIE	MOLCHAM	15	N	N
6	JALUKIE	GELLHANG	23	N	N
7	JALUKIE	PELLHANG NEW	27	N	N
8	JALUKIE	THINGTUH	15	N	N
9	JALUKIE	CHAMCHA	14	N	N
10	JALUKIE	NEW SOGET	45	N	N
11	JALUKIE	PHAIKHOLUM	25	N	N
12	JALUKIE	SONGNGOU	30	N	N
13	JALUKIE	SAILHEM	44	N	N
14	JALUKIE	LILEN	130	N	N
15	JALUKIE	BONGKOLONG	150	N	N
16	JALUKIE	NKEO 'B'	60	N	N
17	TENING	U/SINJOL	23	N	N
18	MANGKOLEMBA	AKUMEN	22	N	N
19	WOKHA	YANTHAMO	186	N	N
20	WOKHA	OKHYAN	54	N	N
21	WOKHA	LONGSACHUNG	187	N	N
22	WOKHA	NIROYO	125	N	N
23	WOKHA	YALUM	57	N	N
24	WOKHA	YANKELI	38	N	N
25	WOKHA	WOCHAN	41	N	N
26	WOKHA	CHANDALASHUNG(N	150	N	N
27	NUILAND	LUHEVI	52	N	N
28	NUILAND	XUKHUVI	78	N	N
29	NUILAND	YETOHO	56	N	N
30	NUILAND	R.HOVISHE	80	N	N
31	NUILAND	NIKIKHE	52	N	N
32	NUILAND	TOKISHE	80	N	N
33	NUILAND	ZHEKISHE	105	N	N
34	NUILAND	VIKHETO	119	N	N
35	NUILAND	KHUTOVI	65	N	N
36	NUILAND	ZUTOI	130	N	N
37	NUILAND	TOHOKHU	60	N	N
38	NUILAND	IZHEVI	65	N	N
39	NUILAND	NIKIHE	63	N	N
40	NUILAND	L.VIHOTO	65	N	N
41	NUILAND	SHIWOTO	25	N	N
42	NUILAND	HEVUXU	35	N	N
43	NUILAND	NITOUZU	58	N	N
44	NUILAND	LUHEZHE	37	N	N
45	NUILAND	SHOQHEVI	65	N	N
46	NUILAND	ZHEXUCHE	67	N	N
47	NUILAND	AOYIMCHEN	48	N	N
48	MELURI	THEWATI NEW	46	N	N
49	MELURI	THEWATI OLD	34	N	N
50	ZUNHEBOTO	VEDAMI	45	N	N

Annex 6.2: (Contd.)

Sl. No.	District/Sub-Division	Name of Village	No. of Farming Households	Electrified (Y/N)	Water (Y/N)
51	AKULUTO	LOTIZA NEW	32	N	N
52	LONGLENG	TANGHA	600	N	N
53	LONGLENG	YONGSHEI	604	N	N
54	LONGLENG	YONGNYAH	918	N	N
55	LONGLENG	LADIGAR	160	N	N
56	KIPHIRE	TIKENVONG	58	N	N
57	KIPHIRE	KHONGJIRE	50	N	N
58	BAGHTY	YANMHON OLD	88	N	N
59	BAGHTY	KARO	32	N	N
60	BAGHTY	YANMHON NEW	51	N	N
61	BAGHTY	RUCHAN	28	N	N
62	BAGHTY	SANKHA	34	N	N
63	BAGHTY	TSSORI OLD	75	N	N
64	BAGHTY	TSSORI NEW	62	N	N
65	BAGHTY	AMBOTO	45	N	N
66	BAGHTY	AGHUATITO	50	N	N
67	BAGHTY	AZUHOTO	22	N	N
68	BAGHTY	LICHAYAN	10	N	N
69	MON	OTING	200	N	N
70	KOHIMA	PHEKEKRIEMA BASA	45	N	Y
71	JALUKIE	KHELMA	105	N	Y
72	JALUKIE	SINJOL	35	N	Y
73	JALUKIE	OLD SOGET	70	N	Y
74	JALUKIE	NEW CHALKOT	70	N	Y
75	JALUKIE	VONGKITHEM	120	N	Y
76	JALUKIE	PHAIJOL	105	N	Y
77	JALUKIE	PELLHANG	150	N	Y
78	JALUKIE	IKISINGRAM	120	N	Y
79	JALUKIE	INKEO(NEW)	106	N	Y
80	JALUKIE	NGOULUNG	40	N	Y
81	JALUKIE	INSANLOW	65	N	Y
82	JALUKIE	OLD BEUSUMPUI	121	N	Y
83	JALUKIE	NEW BESUMPUI	137	N	Y
84	JALUKIE	PEREN NAMDI	34	N	Y
85	TENING	NGAULONG OLD	41	N	Y
86	TENING	BAMSIKILWA	30	N	Y
87	WOKHA	WOROKU	35	N	Y
88	MELURI	REGURI	89	N	Y
89	MELURI	AKHEN	12	N	Y
90	MELURI	MOLEN	60	N	Y
91	MELURI	LETSAM	24	N	Y
92	MELURI	PHOKHUNGRI	144	N	Y
93	MELURI	AVAKHUNG	21	N	Y
94	MELURI	YESI	16	N	Y
95	SATAKHA	KHUKIYE 'A'	60	N	Y
96	LONGLENG	PONGCHING	250	N	Y
97	LONGLENG	MONGTIKANG	89	N	Y
98	LONGLENG	YONGAM	402	N	Y
99	LONGLENG	NIAN	750	N	Y
100	LONGLENG	SHITAP	86	N	Y

Annex 6.2: (Contd.)

Sl. No.	District/Sub-Division	Name of Village	No. of Farming Households	Electrified (Y/N)	Water (Y/N)
101	LONGLENG	NGETCHOCHING	78	N	Y
102	KIPHIRE	HORONGER	168	N	Y
103	KIPHIRE	MUTONGER	203	N	Y
104	KIPHIRE	POLEPHER	21	N	Y
105	KIPHIRE	VONGTI	42	N	Y
106	KIPHIRE	LOPFUKHONG	47	N	Y
107	KIPHIRE	KHONGRA	41	N	Y
108	BAGHTY	WOZHU NEW	37	N	Y
109	BAGHTY	WOZHU OLD	20	N	Y
110	BAGHTY	LIPHI	62	N	Y
111	MON	NYWHNYU	200	N	Y
Total			10567		
Source: List of Villages/Towns/Compounds With Number of Houses and GBs in Nagaland as on 1 April 2002, Office of the Commissioner, GoN					

Annex to Chapter 7

Annex 7.1: Checklist for Filing Application for Incorporation

1. The checklist for filing application with the Registrar of the Company for incorporation of STU under the Companies Act, 1956 is furnished below for ready reference:
 - (a) Availability of name (Form-1A)
 - i. Name of the Corporation
 - ii. Alternative names of the Corporation
 - iii. Address of the Corporation
 - iv. Address of the Directors of the Corporation
 - v. Authorised Share Capital of the Corporation
 - vi. Registered Office of the Corporation
 - (b) Draft copy of Memorandum & Articles of Association (M & AOA)
 - i. Main objects of the Corporation
 - ii. Share holding pattern of the Corporation
 - iii. Promoters of the Corporation (Govt. of Nagaland)
 - iv. First Directors of the Corporation
 - (c) Fee to be paid in demand draft at the time of filing papers for registration:
 - i. For Share Capital of Rs. 5 crores: Rs. 3,58,000
 - ii. For Share Capital of Rs. 10 crores: Rs. 6,08,000
2. The expected time schedule:
 - (a) Approval of Name: 10 days from the Date of Application with the Registrar of the Company (ROC)
 - (b) Certificate of Incorporation: 7-10 working days from the date of filing with ROC the completed M & AOA, forms and fees.

Annex 7.2 : Notification of STU

GOVERNMENT OF NAGALAND DEPARTMENT OF POWER NOTIFICATION

No. _____

Dated Kohima ____/____/2004

In exercise of the powers conferred by Section 39(1) of the Electricity Act, 2003 (hereinafter referred to as "Act"), the State Government hereby specifies Nagaland Power Transmission Corporation Limited, Nagaland (a Government Company registered under the Companies Act, 1956) as the State Transmission Utility, which shall be in charge of the State Load Despatch Centre (at Dimapur) and shall discharge responsibilities and perform the functions as laid down under the Act, namely:

- (a) To operate the State Load Despatch Centre and perform the functions as stipulated in the Act and comply with the Grid Standards and the directions of the Regional Load Despatch Centre;
- (b) To undertake transmission of electricity through intra-state transmission system;
- (c) To discharge all functions of planning and co-ordination relating to intra-state transmission with: Central Transmission Utility; State Government; generating companies; Regional Power Committees; Central Electricity Authority; licensees; and any other persons notified by the State Government in this behalf;
- (d) To ensure development of an efficient, co-ordinated and economical system of intra-state transmission lines for smooth flow of electricity from a generating station to the load centres;
- (e) To provide non-discriminatory open access to its transmission system in accordance with the provisions of the Act and directions of the State Electricity Regulatory Commission; and
- (f) To undertake such other functions as specified in the Act or as may be assigned to it by the State Government.

By order of the Governor of Nagaland
Secretary, Department of Power

Annex 7.3: FRP and Projections for STU

PROFIT & LOSS ACCOUNT										
(Amount in Rs. Crores)	1	2	3	4	5	6	7	8	9	10
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Energy (MU)	364	400	440	484	517	552	589	629	671	716
Inc. in tariff	0.0%	0.0%	10.0%	0.0%	10.0%	0.0%	10.0%	0.0%	10.0%	0.0%
Tariff (Rs./unit)	0.24	0.24	0.26	0.26	0.29	0.29	0.32	0.32	0.35	0.35
Revenue ¹	8.74	9.60	11.44	12.58	14.99	16.01	18.85	20.13	23.49	25.06
Arrears		0.87	0.96	1.14	1.26	1.50	1.60	1.88	2.01	2.35
Total revenue	8.74	10.47	12.40	13.72	16.25	17.51	20.45	22.01	25.50	27.41
Salaries & wages	1.50	1.54	1.58	1.62	1.66	1.70	1.74	1.78	1.82	1.87
Pension	0.12	0.14	0.16	0.18	0.21	0.23	0.26	0.29	0.32	0.36
Transfer from PTF	(0.12)	(0.14)	(0.16)	(0.18)	(0.21)	(0.23)	(0.26)	(0.29)	(0.32)	(0.36)
O&M exp ²	1.89	2.15	2.44	2.77	3.06	3.38	3.72	4.11	4.53	4.99
EBITDA	5.35	6.78	8.38	9.33	11.53	12.43	14.99	16.12	19.15	20.55
Depreciation	(3.64)	(3.80)	(4.13)	(4.46)	(4.79)	(5.12)	(5.45)	(5.78)	(6.11)	(6.44)
Interest										
PBT	1.71	2.98	4.25	4.87	6.74	7.31	9.54	10.34	13.04	14.11
Taxation @ 33.66%	(0.57)	(1.00)	(1.43)	(1.64)	(2.27)	(2.46)	(3.21)	(3.48)	(4.39)	(4.75)
PAT	1.14	1.98	2.82	3.23	4.47	4.85	6.33	6.86	8.65	9.36
Balance brought forward	0.00	1.14	3.12	5.94	9.16	13.63	18.49	24.81	29.62	35.67
Dividend @ 30%								(2.06)	(2.60)	(2.81)
Profit/loss carried to B/S	1.14	3.12	5.94	9.16	13.63	18.49	24.81	29.62	35.67	42.22

Notes:

1. Revenue collection & arrears (Rs. Crores)	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Revenue collected @ 90%	7.87	8.64	10.30	11.32	13.49	14.41	16.97	18.12	21.14	22.55
Revenue arrears	0.87	0.96	1.14	1.26	1.50	1.60	1.88	2.01	2.35	2.51
2. O & M exp in paise/unit	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Inc. in O & M exp. @ 3.3%										
O&M expense	5.20	5.37	5.55	5.73	5.92	6.12	6.32	6.53	6.75	6.97

Annex 7.3: (Contd.)

BALANCE SHEET										
<i>(Amount in Rs. Crores)</i>	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Assets										
Assets transferred	105.00									
New capex	5.00	5.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Gross stock	110.00	115.00	125.00	135.00	145.00	155.00	165.00	175.00	185.00	195.00
Depreciation @ 3.3%	(3.64)	(7.44)	(11.57)	(16.03)	(20.82)	(25.94)	(31.39)	(37.17)	(43.28)	(49.72)
Net fixed assets	106.36	107.56	113.43	118.97	124.18	129.06	133.61	137.83	141.72	145.28
Stock ¹	0.47	0.54	0.61	0.69	0.77	0.84	0.93	1.03	1.13	1.25
Debtors	0.87	0.96	1.14	1.26	1.50	1.60	1.88	2.01	2.35	2.51
Cash and bank	6.24	7.36	4.64	2.43	2.20	2.28	4.67	5.41	8.32	11.52
Loans & adv	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Current assets	8.08	9.36	6.89	4.88	4.97	5.22	7.98	8.95	12.30	15.78
Deposits ²	0.73	0.80	0.95	1.05	1.25	1.33	1.57	1.68	1.96	2.09
Prov. for taxation	0.57	1.00	1.43	1.64	2.27	2.46	3.21	3.48	4.39	4.75
Current liabilities & prov.	1.30	1.80	2.38	2.69	3.52	3.79	4.78	5.16	6.35	6.84
Net current assets	6.78	7.56	4.51	2.19	1.45	1.43	3.20	3.79	5.95	8.94
Investment ³	4.88	5.04	5.18	5.3	5.39	5.46	5.5	5.51	5.49	5.43
Total	118.02	120.16	123.12	126.46	131.02	135.95	142.31	147.13	153.16	159.65
Financed by										
Share capital	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00
Balance in P&L A/c	1.14	3.12	5.94	9.16	13.63	18.49	24.81	29.62	35.67	42.22
W-capital grant	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
Pension funds ³	4.88	5.04	5.18	5.30	5.39	5.46	5.50	5.51	5.49	5.43
Total	118.02	120.16	123.12	126.46	131.02	135.95	142.31	147.13	153.16	159.65

Notes:

1. Stock level is assumed at 3 months' equivalent of O & M expenditure.
2. Deposit is taken as one months' equivalent of billed revenue.
3. Year-wise pension funds (Rs. Crores):

	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Opening balance	5.00	4.88	5.04	5.18	5.30	5.39	5.46	5.50	5.51	5.49
Interest @ 6.0%		0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Pension payment	(0.12)	(0.14)	(0.16)	(0.18)	(0.21)	(0.23)	(0.26)	(0.29)	(0.32)	(0.36)
Closing balance	4.88	5.04	5.18	5.3	5.39	5.46	5.5	5.51	5.49	5.43

Annex 7.4: Draft Transfer Scheme and Order

GOVERNMENT OF NAGALAND DEPARTMENT OF POWER NOTIFICATION

No. _____ Dated Kohima ___/___, 200__
In exercise of the powers conferred by Section 180 of the Electricity Act, 2003, the State Government do hereby make the following Transfer Scheme Rules for the purpose of providing and giving effect to provisions of Section 39 of the said Act and with this end in view for effecting the transfer of undertakings, assets, properties, liabilities, proceedings and personnel of the State Government engaged in transmission of electricity to Nagaland Power Transmission Corporation Limited, Nagaland (a Government Company registered under the Companies Act, 1956), namely:

1. Short Title and Commencement

- (1) These rules may be called the Nagaland Electricity Reform (Transfer of Undertakings, Assets, Liabilities, Proceedings and Personnel of the Government of Nagaland to NPTCL) Rules, 200__, (Transfer Scheme Rules, for short).
- (2) They shall come into force on the date of their publication in the *official gazette*.

2. Definitions

- (1) In these rules, unless the context otherwise requires:
 - (a) "Act" means the Electricity Act, 2003 (Act 36 of 2003);
 - (b) "Effective date" means the date of publication of these rules in the official gazette;
 - (c) "Undertakings" means a block or blocks of assets, liabilities and proceedings of whatever nature presently owned by the State Government concerning the generation, transmission, distribution or supply of electricity;
 - (d) "Assets" include generating stations with associated machinery, equipment, transmission and distribution lines with associated sub-stations, distribution centres, cables, wires, accumulators plants, motors, meters, testing apparatus, computers, communication and telecommunication equipment, land, building, offices, stores, plants, machinery, equipment, installations, furniture, fixtures, vehicles, residential quarters and guest houses and amenities and installations pertaining thereto, and other movable and immovable property, cash in hand, cash at bank, investments, book debts corporeal or incorporeal, tangible and intangible assets, benefits, licences, consents, authorities, registrations, liberties, patents, trade marks, designs, copyrights and other intellectual property rights and all other interests, rights and powers of every kind, nature and description whatsoever, privileges, liberties, easements, advantages, benefits and approvals, contracts, deeds, schemes, bonds, agreements and other instruments and interests of whatever nature;
 - (e) "Liabilities" include all liabilities, debts, duties, obligations and other outgoings including statutory liabilities and Government levies of whatever nature

including the contingent liabilities which may arise in respect of dealings before the effective date in respect of the specified undertakings excluding the personnel and personnel related matters;

- (f) "Proceedings" include all proceedings of whatever nature like suits, appeals, complaints, petitions, application, conciliatory arbitration, whether civil or criminal or otherwise;
 - (g) "Personnel" means employees, staff and officers of the Department of Power, Government of Nagaland, by whatever name called and shall include those who are on deputation from the Department of Power to other organisations, institutions, bodies corporate, and other government departments;
 - (h) "Transmission" means the transportation of electrical energy by means of the transmission system;
 - (i) "Transmission system" means the system consisting of high voltage electric lines having design voltage of 66 KV or higher, which is used for the purpose of the transportation of electricity from one power station to a sub-station or to another power station, or between sub-stations, or to or from any external interconnection and includes all bays/equipment up to the interconnection with the distribution system, and any plant, apparatus and meters owned or used in connection with the transmission of electricity and such buildings or part thereof as may be required to accommodate such plant and apparatus and other works, but shall not include any part of a distribution system;
 - (j) "Distribution" means transportation of electricity by means of the distribution system;
 - (k) "Distribution system" means any system consisting mainly of cables, service lines and overhead lines, electrical plant and meters having design voltage of 33 KV or under and used for the transportation of electricity from the delivery points on the transmission lines or the generating station connection to the point of delivery to end users, and includes any electrical plant and meters in connection with the distribution of electricity but shall not include any part of the transmission system.
 - (l) "NPTCL" means Nagaland Power Transmission Corporation Limited, a company incorporated under the Companies Act, 1956, and having its registered office at _____;
 - (m) "Transferee" means NPTCL in whom the Undertakings are vested and to whom the personnel are transferred; and
 - (n) "Schedule" means the schedules appended to these rules;
- (2) Words and expressions used but not defined in these rules shall have the same meaning respectively assigned to them in the Act, and if not defined in the Act, shall have the meaning as commonly understood in the electricity sector.

3. Classification of Assets into Undertakings

- (1) The State Government may classify the assets, liabilities and proceedings owned by it and relating to the Department of Power, as it may consider appropriate into:
 - (a) Generation Undertakings;

- (b) Transmission Undertakings; and
- (c) Distribution and Supply Undertakings.

Taking into consideration the relatedness, usability, proximity and contiguity to the function pertaining to generation or transmission and distribution activities.

- (2) Unless otherwise specifically provided for in these rules or under the order to be notified by the State Government for transfer of undertakings, assets, liabilities and proceeding, the transmission undertakings shall include the assets, liabilities and proceedings as specified in *Schedule A*.
- (3) The assets, liabilities and proceedings which are not classified under sub-rule (1) and not specified under the Schedule mentioned in sub-rule (2) shall be treated as residuary assets, residuary liabilities and residuary proceedings, as the case may be.
- (4) If the assets under sub-rules (2) above are subject to security documents or arrangements in favour of third parties for any financial assistance or obligation taken by the State Government and the liabilities in respect thereof are to be classified in different undertakings or as a residuary liabilities, the State Government may provide for the apportionment of the liabilities secured by such properties, assets and rights between the different undertakings and the residuary assets and upon such apportionment the security shall be applicable to the apportioned liability only.

4. Transfer of Undertakings by the State

- (1) With effect from the date of publication of these rules, all the assets, liabilities and proceedings relating to transmission of electricity, which the State Government owns or possesses, shall stand transferred to and vest in NPTCL.
- (2) The State Government may, from time to time, by order to be notified in the *official gazette* transfer and vest the Undertakings classified together with such residuary assets, residuary liabilities and residuary proceedings in NPTCL (“the Transferee”) or with any other body to be notified by the Government based on the classification under rule 3
- (3) Upon such transfer the Transferee shall be responsible for all contracts, deeds, schemes, bonds, agreements and other instruments of whatever nature to which the Government was a party, subsisting or having effect on the effective date in the same manner as the State was liable immediately before the effective date and the same shall be in force and effect against or in favour of the Transferee and may be enforced as fully and effectively as if, instead of the State Government the Transferee had been a party thereto.
- (4) Subject to the provisions of the Act, the terms and condition for the transfer of the undertakings or residuary assets, residuary liabilities and residuary proceedings shall be notified by the State Government and in consideration of the transfer to the Transferee as mentioned in sub-rules (1), (2) and (3) such terms and conditions may provide for cash consideration to the State Government or in lieu thereof cause to issue in favour of the State Government or any nominee of the State Government such shares, securities, debentures, stocks or any other instrument as the State Government may consider appropriate.

5. Transfer of Personnel

- (1) All personnel of the Department of Power who are engaged in Transmission undertakings on the effective date shall stand transferred to NPTCL as provided in these rules without any further act or thing to be done by the State Government or the personnel as the case may be.
- (2) Upon such transfer, the personnel who are subject to the transfer, shall not assert or claim, as the case may be, any benefit of service under the State Government except as provided in these rules.
- (3) The State Government may classify the personnel into different groups in so far as practicable having regard to the classification of the undertakings, residuary assets and residuary liabilities.

Provided that the classification of personnel shall not be called into question on the ground that it is not consistent with the classification of the undertakings and residuary assets and residuary liabilities.

- (4) Upon transfer, the personnel shall form a part of the services of NPTCL in the post, scale of pay and seniority to be notified by NPTCL; and that till such notification the personnel shall retain the existing designation, rank, pay, emoluments and benefits.

Provided that the placement of the personnel in the post, scale of pay, seniority shall be subject to orders that may be passed by the Courts or Tribunal in the proceedings pending on the effective date.

- (5) (a) The transfer of personnel shall be subject to the condition that the terms and conditions of the services applicable to them on the effective date shall not in any way be less favourable to them than those applicable to them immediately before such date and all benefits of their respective services rendered before the effective date shall be recognised and taken into account while fixing the condition of services under the Transferee, except as otherwise provided under these rules.

Provided also that the Transferee shall not retrench the personnel transferred on the effective date on account of being declared surplus for whatsoever reasons.

(b) Subject to sub-clause (a), the NPTCL shall frame regulation governing the conditions of services of personnel so transferred.

- (6) (a) Subject to these rules, the Nagaland Civil Service (Classification, Control and Appeal) Rules (hereinafter called "CCA Rules") framed by the State Government and as modified from time to time and applicable to the personnel of the State Government immediately before the effective date, shall *mutatis mutandis* be applicable to the such personnel transferred to the services of NPTCL until such time NPTCL frame its own rule on the subject and the personnel so transferred shall be under the disciplinary control of NPTCL.

Provided that in the matter of application of CCA Rules to the personnel under the service of NPTCL any interpretation and/or classifications issued by the Department of Power, State Government, shall be final and binding.

Provided further that until permanent absorption of the personnel of the State Government the Service Rules applicable to them as Government Employees shall continue to apply.

(b) All proceedings including disciplinary proceedings pending against the personnel prior to the effective date or the proceedings to be instituted against the personnel for misconduct, lapses or other acts of commission or omission committed before the effective date, shall not lapse and shall be decided as the case may be after following the procedure, laid down in the CCA Rules as applicable under sub-rule (6)(a).

(7) (a) Except as specifically provided otherwise herein in respect of all statutory and other schemes and employment related matters including the provident fund, gratuity fund, superannuation fund or any other special fund created or existing for the benefit of the personnel on the effective date, the Transferee of the relevant personnel shall stand substituted for all purposes whatsoever and all the rights, powers and obligations of the State Government, as the case may be, in relation to any and all such matters shall become those of the Transferee.

(b) All accumulations in the respective funds including the provident fund, gratuity and superannuation scheme including all interests and other accruals of the respective personnel to be transferred to NPTCL on the effective date shall be transferred to the corresponding funds to be established or formed by NPTCL.

(c) The State Government shall discharge all obligations in respect of payment of pension and other retirement benefits including provident fund, superannuation and gratuity to the employees who have retired from the services of the Department of Power before the effective date.

(d) The State Government shall create a Pension Fund in the form of a Trust (hereinafter referred to as "Pension Fund Trust") and the pensionary benefits of the respective personnel to be transferred to NPTCL on the effective date shall be paid out of such Pension Fund.

Provided that the Secretary, Department of Power of the State Government shall be the Chairperson of the Board of Trustees which shall include representatives of the Departments of finance, personnel, labour, the employees and experts in the relevant field to be nominated by the State Government.

Provided also that the State Government shall determine the manner in which the liability in regard to the pensionary benefits of the respective personnel to be transferred to NPTCL on the effective date shall be apportioned between the State Government and NPTCL.

Provided also that the State Government shall discharge its pensionary liability as decided and apportioned between the State Government and NPTCL by paying in lump sum, a onetime payment to the Pension Fund Trust and, in addition, shall transfer from time to time funds to NPTCL representing the share of the state liability arising after the effective date as may be determined by the State Government.

Provided further that arrangements under this sub-rule shall not apply to the employees to be directly recruited by the Transferee for whom it may devise its

own pension scheme and make arrangements for funding and disbursing the pensionary benefits.

(e) The personnel of the State Government transferred to NPTCL who are eligible for pensionary and other superannuation benefits as would be applicable or admissible to them if they had continued in the service under the State Government, shall be entitled to receive the entire benefits from the Transferee in the following manner unless otherwise specifically provided by the State Government:

(i) The services rendered by them under the State Government up to the case of permanent absorption shall be taken into account for the purpose of grant of the pensionary and other retirement benefits together with the service to be rendered by them under the Transferee after the said date.

(ii) The pensionary and other benefits will be sanctioned and paid by the Transferee.

(f) The period of the service of the personnel under the Government under the Transferee shall be treated as continuous for the purpose of all service benefits.

(g) The personnel transferred to the service of NPTCL under these rules shall be deemed to have entered into an agreement with NPTCL or the respective nominated authority to repay the loans, advance and other sums due or otherwise perform the obligations undertaken by him to the State Government which remain outstanding against him on the effective date, as per the original terms and conditions.

(8) Notwithstanding anything contained in these rules all personnel of the Central Government working for the electricity transmission work of the State shall stand reverted to their respective department in the Central Government

6. Rights and Obligations of Third Parties Restricted

Upon the transfer being effected in accordance with the Act and these rules, the rights and obligations of all persons shall be restricted to the Transferee to whom they are assigned to and notwithstanding anything to the contrary contained in any deed, documents, agreements or arrangements which such person has with the State Government, he shall not claim any right or interest against the State Government other than against the transferee.

7. Pending Suits and Proceedings

All proceedings of whatever nature by or against the State Government pending on the effective date shall not abate or discontinue or otherwise in any way prejudicially be affected by reason of any transfer effected under these rules but the proceedings may be continued, prosecuted and enforced by or against the State Government or after the transfer of the Undertakings, by or against the relevant Transferee to whom the same are assigned in accordance with these rules. Such proceedings may be continued in the same manner and to the same extent as it would or might have been continued, prosecuted and enforced by or against the State Government as the case may be, if the transfers specified in these rules had not been made.

8. Classification and Transfers Provisional in the First Instance

- (1) The classification of Undertakings made under rule 3 shall be provisional and unless otherwise directed by the State Government shall be final upon the expiry of 12 months from the date when the undertakings are transferred to NPTCL in terms of these rules.
- (2) So long as the classification is provisional the State Government shall be entitled to amend, vary, modify, add, delete or otherwise change the items classified and identified in an Undertaking in such manner as the State Government may consider appropriate.
- (3) All transfers and vesting specified in rules 4,5 and 6 shall be provisional and shall be final upon the expiry of 12 months from the effective date.
- (4) At any time within a period of 12 months from the effective date, the State Government may by order to be notified amend, vary, modify, add, delete or otherwise change the terms and conditions of the transfer including items included in the transfer as well as personnel transferred and transfer such Assets, Properties. Liabilities and personnel forming part of an undertaking of one Transferee to that of any other Transferee or to the State Government in such manner and on such terms and conditions as the State Government may consider appropriate.
- (5) Nothing contained in this rule shall entitle the Transferee, the personnel or any other person to dispute the Classifications or Transfers on the basis that they are provisional.
- (6) Notwithstanding the provisional nature of transfer of personnel to NPTCL for the said period of twelve months, the personnel shall discharge the duties and functions as may be assigned to them from time to time by NPTCL and NPTCL shall have the power to exercise all administrative and disciplinary control over such of the personnel transferred to them as applicable under sub-rule (6) (a) of Rule 5.
- (7) Notwithstanding anything contained in these rules and before the transfer of personnel becomes final under rule 8(4), the Department of Power, may invite the personnel of the State Government to send their willingness and preferences for permanent absorption in NPTCL, after notifying the service conditions and other packages. The permanent absorption shall be finalised, taking into account the ability and experience of the personnel, the number and nature of the vacancies, seniority and the necessity.

9. Decision of the State Government Final

- (1) If any doubt, dispute, difference or issue shall arise in regard to the transfers under these rules subject to the provisions of the Act, the State Government shall make such inquiries and hold such hearings as it considers appropriate to know the views of the affected parties and thereafter the decision made by the State Government shall be final and binding on all the parties.
- (2) The State Government shall have the power to remove difficulties arising in implementing the transfers under these rules.

By order of the Governor of Nagaland

Secretary, Department of Power

SCHEDULE A
[See Rule 3(2)]
TRANSMISSION UNDERTAKINGS

Unless otherwise specified by the Government of Nagaland, the Transmission Undertaking shall comprise of all the assets, liabilities, and proceedings concerning transmission of electricity in the state consisting of:

I. Transmission Assets

- (1) All transmission lines with towers of voltage 66 KV and higher on double circuit single circuit/single circuit on double circuit towers with Grid Sub-stations of various capacities with all associated and related equipment, including step down transformers, circuit breakers metering arrangements and other protective devices with power line communication system, allied control rooms, lands, buildings, roads and other auxiliary assets spread over within and outside the territory of the State including such assets under construction and assets acquired, transferred or rights of which were vested with the State Government by transfer, sale, lease or otherwise, but excluding such constructions or installations lawfully owned and operated by others.
- (2) General assets such as special tools and equipment, material handling equipment, earth movers, bulldozers, concrete mixers, cranes, trailers, heavy and light vehicles, furniture, fixtures, office equipment, air conditioners refrigerators, computers and signal systems, spares, consumables, raw materials, lands and civil works installations including roads, buildings, schools, dispensaries, testing laboratories and equipment, training centres, workshops, works in progress, machinery and equipment sent to repairs, scraps and obsolete articles relating to Transmission Undertaking.
- (3) Other assets and movable properties including plant and machine, motor car, jeeps, trucks, cranes, trailers and other vehicles, furniture, fixtures, air conditioner, computers, etc. to the extent they are utilised in, operated by or associated with the assets referred to under Clauses I above shall also for a part of Transmission Undertaking.

II. Assets of the State Load Despatch Centre

Assets belonging to the State Load Despatch Centre at Dimapur and sub-Load Despatch Centres at _____, _____, _____ with the land, buildings, plant and equipment and also other assets of nature mentioned in sub-clause (1), (2) and (3) of Clause-I above associated or related to the State Load and sub-Load Despatch Centres.

III. Liabilities and Proceedings

- (1) Contract, agreements, interest and arrangements to the extent they are associated with on related to transmission activities or to the undertakings or assets referred to in Clauses-I and II above.

- (2) Loans secured and unsecured to the extent they are associated with or related to transmission activities or to the assets and undertakings referred to in Clauses-I and II above.
- (3) Cash and bank balance to the extent to be specified in notification to be issued by the Government.
- (4) Other current assets to the extent they are exclusively or primarily associated with or related to transmission activities or to the undertakings or assets referred to in Clauses-I and II above.
- (5) Current and other liabilities and provisions to the extent to be specified in notification to be issued by the Government.
- (6) Proceedings to the extent they are associated with or related to transmission activities or to the assets and undertakings referred to in Clauses-I and II above.

IV. Miscellaneous

- (1) Notwithstanding that the transmission system and lines vest in the Transferee, any Distribution and Retail Supply of electricity to the consumers directly from the transmission system/lines (without going through the distribution system/lines), shall be the business of the Distribution Licensee in the area of supply and not that of the Transferee. The Transferee will provide to the Distribution Licensees the meter readings and other information relating to such direct supply to the consumers from the Transmission system/lines.
- (2) Such other assets, liabilities and proceedings that the State Government may vest in the Transferee within one year from the effective date.

Annex 7.4: (Contd.)
GOVERNMENT OF NAGALAND
DEPARTMENT OF POWER
ORDER

No. _____ Dated Kohima ____ / _____, 200_

In exercise of powers conferred by Nagaland Electricity Reform (Transfer of Undertakings, Assets, Liabilities, Proceedings and Personnel of the Government of Nagaland to NPTCL) Rules, 200_, the State Government is pleased to make the following order to transfer certain undertakings as mentioned below to vest them in the Nagaland Power Transmission Company Limited (hereinafter referred to as "NPTCL") incorporated under the provisions of the Companies Act, 1956 with its registered office at _____ subject to the terms and conditions contained hereunder.

1. The undertakings to be transferred are all the assets, liabilities and proceedings of the State Government as described in Schedule A to the said rules.
2. The aggregate value of the undertakings to be transferred and vested in NPTCL is fixed at Rs.105 crores as on ____ / _____, 200_ the value and details thereof have been worked out and fixed with the consent of NPTCL and taking account the fact that NPTCL is a wholly owned Government Company and it has limited revenue potential in the state.
3. The amount of Rs.105 crores in the aggregate mentioned above shall be the full consideration for the transfer of the Undertakings to NPTCL as on ____ / _____, 200_.
4. In full adjustment of the above consideration the State Government shall be entitled to equity share capital of Rs.105 crores comprising of 10,500 equity shares of Rs.1000 each.
5. The State Government shall provide one time grant of Rs.5 crores to Pension Fund Trust to be created for the employees transferred to NPTCL.
6. The State Government shall provide Rs. 7 crores to NPTCL as one time working capital grant.
7. In accordance with Rule 8 (3) of the Transfer Scheme Rules, the transfer of properties, interest in properties, rights and liabilities vested as above shall be provisional for a period of twelve months from the date of this order.

By order of the Governor of Nagaland
Secretary, Department of Power

Annex to Chapter 8

Annex 8.1: Manpower of DoP

Division	Regular Posts	Work-Charge Staff	Total
<u>Dimapur Electrical Circle</u>			
Dimapur (E)	303	320	623
Dimapur (Transmission)	131	118	249
Kohima (E)	242	177	419
Phek (E)	97	102	199
Wokha	86	159	245
LMTC Dimapur	11	nil	11
SE (E) Dimapur	20	nil	20
Sub-Total (A)	890	876	1,766
<u>Mokokchung (E) Circle</u>			
Changtongya (E)	138	133	271
Mokokchung (E)	184	155	339
Mon (E)	84	210	294
Tuensang (E)	139	269	408
Zunheboto (E)	103	211	314
SE (E) Mokokchung	19	nil	19
Sub-Total (B)	667	978	1,645
<u>Others</u>			
EE (Trans) Mokokchung	56	30	86
EE (Stores) Dimapur	63	37	100
EE (E) Likimro HEP	72	18	90
EE (C) Likimro HEP	76	na	76
EE (E) Hydro	59	42	101
EE (C) Hydel	69	41	110
CE (Power) Kohima	103	nil	103
Sub-Total (C)	498	168	666
Grand Total (A + B + C)	2,055	2,022	4,077

Annex 8.2: FRP And Projections for NPDSCL

PROFIT & LOSS ACCOUNT										
	1	2	3	4	5	6	7	8	9	10
<i>(Amount in Rs. Crores)</i>	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Energy (MU)	364	400	440	484	517	552	589	629	671	716
T & D loss (%)	43.7	38.7	33.7	28.7	26.5	24.3	22.1	19.9	17.7	15.5
Collection efficiency (%)	84.2	86.2	88.2	90.2	91.2	92.2	93.2	94.2	95.2	96.2
AT&C loss (%)	52.5	47.3	41.6	35.7	32.9	30.3	27.3	24.5	21.6	18.7
Inc. in power purchase rate (%)	10.0	0.0	10.0	0.0	10.0	0.0	10.0	0.0	10.0	0.0
Power purchase rate (Rs./kwh)	2.44	2.44	2.68	2.68	2.95	2.95	3.25	3.25	3.58	3.58
STU tariff (Rs./kwh)	0.24	0.24	0.26	0.26	0.29	0.29	0.32	0.32	0.35	0.35
Inc. in consumer tariff (%)	25.0	0.0	25.0	0.0	15.0	0.0	13.0	0.0	6.5	0.0
Average tariff (Rs./kwh)	3.04	3.04	3.80	3.80	4.37	4.37	4.94	4.94	5.26	5.26
<i>(Rs. crore)</i>										
Revenue billed	62.30	74.54	110.85	131.13	166.06	182.61	226.66	248.89	290.47	318.24
Collection of arrears ¹	13.50	15.96	10.14	12.88	12.66	14.39	14.03	15.18	14.22	13.73
Sale outside the state (UI) ²	13.50	15.30	15.30	16.20	16.20	16.20	16.20	16.20	16.20	16.20
Total revenue without GoN Subsidy	89.30	105.80	136.29	160.21	194.92	213.20	256.89	280.27	320.89	348.17
Power purchase cost	88.82	97.60	117.92	129.71	152.52	162.84	191.43	204.43	240.22	256.33
Intra-state transmission charges	8.74	10.47	12.40	13.72	14.99	16.01	18.85	20.13	23.49	25.06
Gross surplus/deficit	(8.26)	(2.27)	5.97	16.78	27.41	34.35	46.61	55.71	57.18	66.78
Salaries and wages ³	19.77	19.77	20.01	20.15	20.35	20.47	20.67	20.84	21.09	21.22
Pension ⁴	1.56	1.85	2.04	2.29	2.52	2.82	3.10	3.41	3.70	4.06
Transfer from PTF	(1.56)	(1.85)	(2.04)	(2.29)	(2.52)	(2.82)	(3.10)	(3.41)	(3.70)	(4.06)
Others	0.86	0.89	0.93	0.97	1.01	1.05	1.09	1.13	1.18	1.23
Total establishment expenses	20.63	20.66	20.94	21.12	21.36	21.52	21.76	21.97	22.27	22.45
O&M exp ²	2.46	2.71	2.98	3.28	3.61	3.97	4.37	4.81	5.29	5.82
Provision for bad debts	0.15	0.15	0.20	0.19	0.22	0.21	0.23	0.22	0.21	0.18
EBITDA	(31.50)	(25.79)	(18.15)	(7.81)	2.22	8.65	20.25	28.71	29.41	38.33
Amortization of deferred credit	31.50	25.79	18.15	7.81	0.00	0.00	0.00	0.00	0.00	0.00
Depreciation	(19.66)	(20.82)	(21.64)	(22.30)	(22.96)	(23.46)	(23.95)	(24.45)	(24.94)	(25.44)
Interest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(2.40)	(1.80)
PBT	(19.66)	(20.82)	(21.64)	(22.30)	(20.74)	(14.81)	(3.70)	4.26	6.87	14.69
Taxation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.43)	(2.31)	(4.94)
PAT	(19.66)	(20.82)	(21.64)	(22.30)	(20.74)	(14.81)	(3.70)	2.83	4.56	9.75
Balance brought forward	0.00	(19.66)	(40.48)	(62.12)	(84.42)	(105.16)	(119.97)	(123.67)	(120.84)	(117.65)
Dividend to GoN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(1.37)	(2.93)
Profit/loss carried to balance sheet	(19.66)	(40.48)	(62.12)	(84.42)	(105.16)	(119.97)	(123.67)	(120.84)	(117.65)	(110.83)

Notes:

1. Revenue collection & arrears
(Rs. crores)

	1	2	3	4	5	6	7	8	9	10
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Current year arrears	9.84	10.29	13.08	12.85	14.61	14.24	15.41	14.44	13.94	12.09
Provision for bad debts @ 1.5%	0.15	0.15	0.20	0.19	0.22	0.21	0.23	0.22	0.21	0.18
Net year-end debtors	9.69	10.14	12.88	12.66	14.39	14.03	15.18	14.22	13.73	11.91
Collection of arrears as on 31.03.05	6.27	6.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Collection of arrears (proj period)	7.23	9.69	10.14	12.88	12.66	14.39	14.03	15.18	14.22	13.73
Debtors carried to balance sheet	15.96	10.14	12.88	12.66	14.39	14.03	15.18	14.22	13.73	11.91

Annex 8.2: (Contd.)

2. Sales outside the state (UI)	1	2	3	4	5	6	7	8	9	10
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Sales in MU	75	85	85	90	90	90	90	90	90	90
Sales in Rs. crores	13.50	15.30	15.30	16.20	16.20	16.20	16.20	16.20	16.20	16.20

3. Salaries and wages (Rs. crores)	1	2	3	4	5	6	7	8	9	10
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Total salaries and wages	21.27	21.31	21.59	21.77	22.01	22.17	22.41	22.62	22.91	23.09
Salaries & wages transferred to STU	(1.50)	(1.54)	(1.58)	(1.62)	(1.66)	(1.70)	(1.74)	(1.78)	(1.82)	(1.87)
Salaries & wages carried to NPDSCL	19.77	19.77	20.01	20.15	20.35	20.47	20.67	20.84	21.09	21.22

4. Pension (Rs. crores)	1	2	3	4	5	6	7	8	9	10
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Estimated pension	1.68	1.99	2.20	2.47	2.73	3.05	3.36	3.70	4.02	4.42
Pension transferred to STU	(0.12)	(0.14)	(0.16)	(0.18)	(0.21)	(0.23)	(0.26)	(0.29)	(0.32)	(0.36)
Pension carried to NPDSCL	1.56	1.85	2.04	2.29	2.52	2.82	3.10	3.41	3.70	4.06

Annex 8.2: (Contd.)

BALANCE SHEET										
	1	2	3	4	5	6	7	8	9	10
<i>(Amount in Rs. Crores)</i>	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Assets										
Gross block	665.91									
Assets transferred to STU	(105.00)									
Assets transferred to NPDSCCL	560.91									
New capex during the year	35.00	35.00	25.00	20.00	20.00	15.00	15.00	15.00	15.00	15.00
Gross block	595.91	630.91	655.91	675.91	695.91	710.91	725.91	740.91	755.91	770.91
Depreciation ¹	(19.66)	(40.48)	(62.12)	(84.42)	(107.38)	(130.84)	(154.79)	(179.24)	(204.18)	(229.62)
Net assets	576.25	590.43	593.79	591.49	588.53	580.07	571.12	561.67	551.73	541.29
Stock ²	0.62	0.68	0.75	0.82	0.90	0.99	1.09	1.20	1.32	1.46
Debtors	15.96	10.14	12.88	12.66	14.39	14.03	15.18	14.22	13.73	11.91
Cash & bank balance	44.76	26.40	9.65	7.50	13.46	7.99	12.66	17.96	23.15	35.61
Loans & advances ³	0.49	0.54	0.59	0.65	0.72	0.79	0.87	0.96	1.06	1.17
Current assets	61.83	37.76	23.87	21.63	29.47	23.80	29.80	34.34	39.26	50.15
Security deposits (consumers) ⁴	4.67	5.14	5.65	6.22	6.84	7.52	8.27	9.10	10.01	11.01
Power bills payable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Provision for taxation								1.43	2.31	4.94
Current liabilities & provision	4.67	5.14	5.65	6.22	6.84	7.52	8.27	10.53	12.32	15.95
Net Current Assets	57.16	32.62	18.22	15.41	22.63	16.28	21.53	23.81	26.94	34.20
Investment (Pension)	98.44	102.59	106.55	110.26	113.74	116.92	119.82	122.41	124.71	126.65
Total	731.85	725.64	718.56	717.16	724.90	713.27	712.47	707.89	703.38	702.14
Financed by										
Share capital	560.91	560.91	560.91	560.91	560.91	560.91	560.91	560.91	560.91	560.91
Reserves and surplus	6.59	12.02	9.13	1.83	(3.91)	(18.72)	(22.42)	(19.59)	(16.40)	(9.58)
Balance in P&L A/c	(19.66)	(40.48)	(62.12)	(84.42)	(105.16)	(119.97)	(123.67)	(120.84)	(117.65)	(110.83)
Capex grant	26.25	52.50	71.25	86.25	101.25	101.25	101.25	101.25	101.25	101.25
Working capital grant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bonds	10.00	20.00	30.00	40.00	50.00	50.00	50.00	40.00	30.00	20.00
Deferred Credit ⁵	55.91	30.12	11.97	4.16	4.16	4.16	4.16	4.16	4.16	4.16
Grant for PFT ⁶	98.44	102.59	106.55	110.26	113.74	116.92	119.82	122.41	124.71	126.65
Total	731.85	725.64	718.56	717.16	724.90	713.27	712.47	707.89	703.38	702.14

Notes:

1. New capex is depreciated on a straight line basis over 30 years at 3.3%.
2. Stock level is assumed at 3 months equivalent O & M expenditure.
3. For the 1st year, loans and advances are estimated at 50% of the balance sheet amount (Rs.0.97 crore) as on 31.03.2002. The amount is assumed to increase at 10% from the second year onwards.
4. It is assumed that outstanding security deposits (Rs.4.67 crores) from the consumers will be transferred from Treasury in the 1st year. Amount is assumed to grow at 10% from the second year onwards.

Annex 8.2: (Contd.)

5. Deferred credit (Rs. crores)	1	2	3	4	5	6	7	8	9	10
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Opening balance	87.41	55.91	30.12	11.97	4.16	4.16	4.16	4.16	4.16	4.16
Subsidy for cash loss	(31.50)	(25.79)	(18.15)	(7.81)	0.00	0.00	0.00	0.00	0.00	0.00
Closing balance	55.91	30.12	11.97	4.16	4.16	4.16	4.16	4.16	4.16	4.16

6. Pension fund (Rs. crores)	1	2	3	4	5	6	7	8	9	10
	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Opening balance	100.00									
Interest earned @ 6%		6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Pension payment	(1.56)	(1.85)	(2.04)	(2.29)	(2.52)	(2.82)	(3.10)	(3.41)	(3.70)	(4.06)
Closing balance	98.44	102.59	106.55	110.26	113.74	116.92	119.82	122.41	124.71	126.65

Annex to Chapter 9

**Annex 9.1: NERC Rules for Service Conditions
of the Chairperson**

GOVERNMENT OF NAGALAND

DEPARTMENT OF POWER

NOTIFICATION

No. _____

Dated Kohima, ____/____, 200_

In exercise of the powers conferred by sub-section 2(d) of Section 180 read with Sub Section (2) of section 89 of the Electricity Act, 2003 (36 of 2003), the Government of Nagaland hereby makes the following rules, namely,

1. Short Title

The Rules may be called the Nagaland Electricity Regulatory Commission (Conditions of Service of Chairperson) Rules, 200_

2. Definitions

- (1) In these rules, unless the context otherwise requires:
 - (a) "Act" means the Electricity Act, 2003 (Act 36 of 2003);
 - (b) "Commission" means the Nagaland Electricity Regulatory Commission, established under section 82 of the Act;
 - (c) "Compensatory Allowance" means an allowance granted to a member to meet his personal expenditure necessitated by the special circumstances of the duty that he performs;
 - (d) "Government" means the Government of Nagaland; and
 - (e) "Chairperson" refers to the Member cum Chairperson appointed as the Chairperson of the Commission in pursuance of the provisions of the Act.
- (2) Words and expressions used but not defined in these rules shall have the same meaning respectively assigned to them in the Act, and if not defined in the Act, shall have the meaning as commonly understood in the electricity sector.

3. Pay and allowance of Chairperson

- (1) The Chairperson shall be paid a salary of Rs. _____ per mensem.
Provided that, when the Chairperson is a member or past member of the Union Service or of any State Service the sum total of his pay and allowances and the amount of pension due to him shall not exceed the amount of last pay drawn by him while he was in such service.
- (2) The Chairperson shall be entitled to dearness allowance at the same rate admissible to the officers of the corresponding grade of the Government.

Provided that, the Chairperson drawing his service pension shall not be entitled to any temporary increase in the dearness allowance in his pension so long as he draws dearness allowance under these Rules.

- (3) A Chairperson shall be entitled to a compensatory local allowance at the same rate as admissible to the officers of the corresponding grade of the Government.

4. Accommodation

A Chairperson shall be entitled to rent-free accommodation of the equal area admissible to the officers of the corresponding grade of the Government.

Provided that in the event of such accommodation not being available for any reason, the government may take a suitable accommodation on lease for such member.

Provided further that, if he is staying in his own house, he shall be paid a house rent allowance at the same rate admissible to the officers of the corresponding grade of the Government.

Explanation: For the purposes of this Rule the term "rent" shall not include the water and electricity charges.

5. Leave

- (1) The Chairperson shall be entitled for earned leave, half pay leave, commuted leave and extraordinary leave as permissible to the officers of the corresponding grade of the Government, in accordance with the Pay Rules, applicable to the officers of the corresponding grade of the Government.
- (2) He shall be entitled for the leave encashment benefit as permissible to the officers of the corresponding grade of the Government.
- (3) The leave at the credit of the Chairperson shall lapse on the date on which he vacates his office.

Provided that, if the Chairperson has applied for leave and the same has been refused, or the Chairperson has ascertained, in writing from the sanctioning authority that, leave, if applied for will be refused, on the ground of the necessity of public services, the leave shall not lapse.

- (4) Notwithstanding anything contained in the preceding Rules or the Nagaland Civil Services (Leave) Rules, _____, the Chairperson shall be entitled to an allowance equivalent to the earned leave to his credit, on the date on which he vacates his offices, subject to the condition that, the payment of allowance equivalent to the leave salary shall be limited to earned leave for a maximum of one hundred fifty days. The allowances equivalent to the leave salary shall be paid in full in one lump sum as one time settlement, on vacating the office.

Explanation: For the purpose of computation of such allowance the compensatory local allowance or the house rent allowance shall not be counted.

6. Leave Sanctioning Authority

The Minister-in-Charge of the Department of Power of the Government shall be the leave sanctioning authority.

7. Pension and Gratuity

- (1) The Chairperson shall not be entitled for pension for the period of service rendered in the Commission.
- (2) The Chairperson shall be entitled to the benefit of gratuity at the rate of thirty days of pay for each completed year of service in the Commission.

Provided that, the Chairperson had completed a minimum of two years of service in the Commission.

8. Conveyance

- (1) The Chairperson shall be provided with a chauffeur driven car at the cost of the Commission.
- (2) The Chairperson shall be permitted to use the car provided to him for his private purposes on the same terms and conditions applicable to the officers of the corresponding grade of the government.

9. Travelling Allowance

- (1) The Chairperson shall be entitled to a travelling allowance at the same rate as applicable to the officers of the corresponding grade of the government.
- (2) The Chairperson shall be entitled to leave travel concession at the same rate as admissible to the officers of the corresponding grade of the government.
- (3) The Chairperson shall not go on foreign tour for official purposes without obtained prior permission of the Minister-in-Charge of the Power Department of the Government. In addition to the same, the Chairperson shall obtain clearance from the Central Government, as applicable to the officers of the corresponding grade of the Government. The daily allowance and other allowances payable to the Chairperson shall be such as are applicable to the officers of the corresponding grade of the Government.

10. Telephone Facilities

The Chairperson shall be provided with a telephone with residential S.T.D facilities, at the cost of the Commission, and may be permitted to retain the same for a maximum period of two months, after vacating the office.

11. Medical Treatment

The Chairperson shall be entitled to the medical treatment and hospital facilities permissible to the officers of the corresponding grade of the Government.

12. Expenses on Official Meetings and Entertainment Allowance

- (1) The Chairperson may authorize expenses to be incurred by the commission on meetings of which tea, coffee and refreshment might be provided.
- (2) The Chairperson may authorize reasonable expenses on the entertainment of visitors to the Commission.

13. Sumptuary Allowance

The Chairperson shall be entitled to sumptuary allowance at the rate of Rs. _____ per mensem.

14. Other Allowances

The Chairperson shall be entitled to such other allowances as are applicable to the officers of the corresponding grade of the Government.

15. Miscellaneous

In case of any doubt regarding interpretation of the Rules, or when express provision has not been made in the Rules about a particular matter, the same shall be referred to the Government, whose decision shall be final.

By order of the Governor of Nagaland
Secretary, Department of Power

**Annex 9.2: Rules Regarding Oath of Office and Secrecy
of the Chairperson**

**GOVERNMENT OF NAGALAND
DEPARTMENT OF POWER
NOTIFICATION**

No. _____ Dated Kohima, ____/____, 200_

In exercise of powers conferred by sub-section (2) (e) of Section 180 of the Electricity Act, 2003 read with sub-section (3) of Section 89 of the said Act, the State Government hereby makes the following Rules, namely:

1. Short Title and Commencement

These Rules may be called the Rules regarding Oath of office and secrecy of the Chairman of Nagaland Electricity Regulatory Commission.

2. The Chairperson of the Nagaland Electricity Regulatory Commission shall make and subscribe an Oath of office and secrecy in Forms I & II, respectively provided in the *Schedule* annexed to these rules before assumption of office.
3. The Oath of office and secrecy shall be subscribed before the Governor of the State or before the Chief Secretary of the State if so authorized by the Governor.
4. These Rules shall come into immediate effect.

By order of the Governor of Nagaland
Secretary, Department of Power

Annex 9.2: (Contd.)

SCHEDULE

[See Rule (2)]

FORM I

(Form of an Oath of office for the Chairperson of
Nagaland Electricity Regulatory Commission)

I, having been appointed as the Chairperson of the Nagaland Electricity Regulatory Commission do solemnly affirm/swear in the name of God ,that I will faithfully and conscientiously discharge my duties as the Chairperson to the best of my ability, knowledge and judgement, without fear or favour, affection or ill-will.

Signature of the Chairperson

FORM II

(Form of an Oath of office for the Chairperson of
Nagaland Electricity Regulatory Commission)

I, having been appointed as Member of the Nagaland Electricity Regulatory Commission do solemnly affirm/swear in the name of God that I will not directly or indirectly communicate or reveal to any person or persons any matter which shall be brought under my consideration or shall become known to me as the Chairperson of the said Commission except as may be required for the due discharge of my duties as Member.

Signature of the Chairperson

Annex 9.3: Appointment of the Member-Cum-Chairperson

**GOVERNMENT OF NAGALAND
DEPARTMENT OF POWER
NOTIFICATION**

No. _____ Dated Kohima, ____/____, 200_

In exercise of powers conferred by sub-section (5) of Section 82 of The Indian Electricity Act, 2003 (Act 36 of 2003), the State Government has been pleased to appoint Shri/Smt. _____ as the Member of the Nagaland Electricity Regulatory Commission for a term of five years with effect from the date he/she takes office or attainment of sixty-five years whichever is earlier.

Shri/Smt. _____ shall also be the Chairperson of the Commission for the period of his tenure as the Member of the Commission.

By order of the Governor of Nagaland
Secretary, Department of Power

Annex 9.4: Notification of NERC

**GOVERNMENT OF NAGALAND
DEPARTMENT OF POWER
NOTIFICATION**

No. _____

Dated Kohima, ____/____, 200_

In exercise of powers conferred by sub-section (1) of Section 82 of The Indian Electricity Act, 2003 (Act 36 of 2003), the State Government hereby establish a one member Commission to be known as Nagaland Electricity Regulatory Commission with effect from the date the first Member joins office.

2. Shri/Smt. _____ shall be the first Member of the Commission and shall also be its first Chairperson.

By order of the Governor of Nagaland
Secretary, Department of Power

**Annex 9.5: Regulation for Terms and Conditions of Services of
the Secretary, Officers and Other Employees**

**GOVERNMENT OF NAGALAND
DEPARTMENT OF POWER
NOTIFICATION**

No. _____ Dated Kohima, ____/____, 200_

In exercise of the powers conferred by Section 181 read with sub-section (2)(zk) of Section 91 of the Electricity Act, 2003 (Act 36 of 2003), the Nagaland Electricity Regulatory Commission with the prior approval of the State Government, hereby makes the following regulations, namely:

**CHAPTER I
GENERAL**

1. Short Title

- (1) These regulations may be called the "Terms and Conditions of Service of the Secretary, Officers and other employees of NERC Regulations, 200_".
- (2) These Regulations shall come into force on the date of their publication in the Gazette.

2. Applicability

These Regulations shall apply to all Officers/Staff of Nagaland Electricity Regulatory Commission mentioned in regulation 4 of these regulations.

3. Definitions

- (1) In these rules, unless the context otherwise requires:
 - (a) "Act" means the Electricity Act, 2003 (Act 36 of 2003);
 - (b) "Appointing Authority" means the Chairperson, in respect of the posts mentioned in sub-regulation (1) (a) of regulation 4; and Director (Admn.) in respect of posts mentioned in sub-regulation (1) (b) of regulation 4;
 - (c) "Competent Authority" means Chairperson and such other officers in the Commission designated from time to time for the purpose by the Commission in accordance with these regulations;
 - (d) "Chairperson" means the Chairperson of the Commission;
 - (e) "Member" means the member of the Commission;
 - (f) "Function" means and includes all work and related activities of the Commission;
 - (g) "Service" means the service by Staff/ Officers of the Commission; and
 - (h) "Year" means calendar year.

- (2) Words and expression used in these regulations but not defined unless the context otherwise requires, shall have the same meaning as respectively assigned to them in the Act.

CHAPTER II POSTS AND STRENGTH

4. Categorisation of Posts and Strength of Officers and Staff

- (1) The officers and supporting staff of the Commission are categorized as under and the strength of each category is mentioned against each of them.

	Name of Post	No.	Scale of pay
(a)	Officers		
i	Commission Secretary	1	
ii	Director (Engineering)	1	
iii	Director (Law)	1	
iv	Director (Tariff)	1	
v	Director (Administration)	1	
vi	Adviser to Commission (equivalent to Director)	1	
vii	Deputy Director (Engg./Transmission)	1	
viii	Deputy Director (Engg./Gen. & Power proc.)	1	
ix	Deputy Director (Engg./Dist. & Trading)	1	
x	Deputy Director (Tariff/Accounts & Financial Analysis)	1	
xi	Deputy Director (Tariff/Economics)	1	
xii	Deputy Director (Tariff/Engineering)	1	
xiii	Deputy Director (Information Technology)	1	
xiv	Deputy Director (Personnel)	1	
xv	Deputy Director (Pay & Accounts)	1	
xvi	Public Affairs Officer	1	
(b)	Supporting Staff		
i	Private Secretary	1	
ii	Personal Assistant	5	
iii	Accountant	1	
iv	Security Officer	1	
v	Cashier	1	
vi	Steno-cum-Computer Operator	6	
vii	Librarian	1	
viii	Caretaker	1	
ix	Receptionist	1	
x	Telephone Operator	1	
xi	Messengers/Group D	4	
xii	Watchman/Security Guard	2	
xiii	Attendants	5	
xiv	Drivers	2	

- (2) The officers and staff may be appointed by the Commission on any one of the modes, namely, (i) on regular basis (ii) on contract services, and (iii) on

- deputation from Government Departments or other organizations of Central/ State Government.
- (3) The approval of the staff strength under sub-clause (1) of the Regulations shall also be treated as approval for creation of posts under Section ____ of Act ____ of _____, relating to regulation of appointments in offices and establishments in the State Government.
 - (4) Nothing in Clauses (1) or (2) of regulation 4 shall be construed as requiring the Commission to have at all times, the Officers/ Staff serving in all the categories or posts.

CHAPTER III PLACEMENT

5. Placement of Officers

- (1) The Commission shall decide the post that an Officer/Staff is to occupy at any time.
- (2) An officer may be allowed to hold another post in additional charge for which allowance may be paid as per the Government rules in force.

CHAPTER IV RECRUITMENT AND OTHER CONDITIONS OF SERVICE

6. Appointment

- (1) All appointments to the post of Officer/Staff shall be made by the Authority as indicated in sub-regulation (b) of regulation 3.
- (2) The persons who are working in the Commission prior to commencement of these regulations shall be eligible for being considered, along with the outsiders for the purpose of direct recruitment to various grades irrespective of their age but subject to upper age limit prescribed in regulations, provided they fulfill the prescribed eligibility criteria for being considered for the post.
- (3) A person to be directly appointed should be of sound health. Every candidate directly recruited for appointment shall be examined by a Medical Board. A candidate who fails to satisfy the Medical Board shall not be appointed on a regular basis. This condition does not apply to those (i) taken on contract (ii) taken on deputation, and (iii) who are already working in a Government organisation prior to joining the Commission.
- (4) A candidate to be appointed has to possess necessary qualifications and experience, as prescribed post-wise, given in *Appendix I & Appendix II* to these regulations. However, when suitable candidates are not available the Commission after recording reason may relax the eligibility criteria for appointment with regard to posts and persons in appropriate cases.
- (5) All appointments shall be subject to verification of character and antecedents as may be decided by the Commission from time to time

7. Selection Committees

- (1) The Selection committee for officers included in sub-regulation 4(1)(a) will consist of the Chairperson of the Commission and wherever the Commission considers it necessary, it will co-opt a specialist/ expert as a member of the Selection Committee. The Chairperson of the Commission will be the Chairman of the Selection Committee.
- (2) The Selection Committee for supporting staff included in sub-regulation 4(1)(b) will consist of the Director/Administration. One Joint Director/Deputy Director and the Deputy Director Personnel/Personnel Officer as nominated by the Chairperson of the Commission. The Director/Administration will be the Chairman of the Selection Committee.
- (3) The Selection Committee shall meet as and when it becomes necessary.
- (4) In case of vacancy of post of Director Administration, the Commission may temporarily authorize a person as felt suitable by the Commission to act in his behalf for appointment to the posts mentioned in sub-regulations (1) & (2) of Regulation 4 and also to act as appointing authority for posts mentioned in sub-regulation (b) of regulation 4(1).

8. Age Limit

The age limit for direct recruitment to the posts mentioned in regulation 4(1)(b) shall be as per the prevailing rules of Government of Nagaland as modified from time to time. However, in respect of the remaining staff, there shall be no upper age limit for considering them for appointment. Persons who have already superannuated are to be appointed into the commission only on contract basis.

9. Application for Appointment

- (1) The Commission may announce in such manner as it thinks fit the number of vacancies to be filled by direct appointment and shall invite applications from candidates eligible for appointment to the service.
- (2) Every candidate shall submit his/her application in the prescribed form along with prescribed fees and documents to the Director (Administration) or any other designated officer of the Commission so as to reach him not later than such date as may be notified.
- (3) The application shall be accompanied with a Demand Draft for the prescribed amount.

10. Certificates

The candidate must submit along with his application:

- (a) Evidence of requisite educational qualification;
- (b) Certificates of character and conduct from the head of college in which he has last studied in case of candidates who have not served earlier in any capacity in State Government/ Public Sector Undertakings. Those who are

serving in the private sector prior to employment in the commission should obtain such certificate from the previous employer;

- (c) Evidence of age, which should be the High School Certificate; and
- (d) Caste certificate from the competent authority in case of candidates belonging to SC, ST, and OBC.

11. Process of Application

The Commission shall consider all valid applications received and interview those who are short-listed, considering the number of vacancies.

12. Selection of the Candidate

On the recommendation of the Selection Board the Commission shall prepare a list of candidates arranged in order of merit.

13. Selection in the Cadre of Direct Recruitment

The appointment shall be given on the basis of merit shown in the select list.

Provided that the appointment shall be subject to medical fitness, as certified by the Medical Board, in case of those who had earlier not been in Government service.

14. Pay fixation

The pay of the selected candidates may be fixed in the suitable grade of the pay scale of the post as deemed appropriate by the Commission.

15. Original Certificates

All the candidates shall produce the originals of the following certificates at the time of the interview and again immediately before the joining, if selected:

- (a) SSC/ SSLC or its equivalent examination as proof of age;
- (b) Documents in support of educational qualification and experience; and
- (c) Certificate of caste/ tribe/ category, if claiming the reserved post.

16. Probation

- (1) All the direct recruits shall be on probation for a period of two years from the date of their joining in a period of three years. In respect of promotees, the probation period is one year on duty in a period of two years.
- (2) The period of probation shall not include the following:
 - (a) The period spent on Earned Leave, Extraordinary Leave and the Medical Leave availed during the period of probation; and
 - (b) The period of unauthorised absence and the period held not to be on duty by the Commission.

- (3) The Commission may extend the period of probation for a maximum period of one year in one or more instalments, or dispense with the services of a probationer after giving him/ her a month's notice, if in the opinion of the Commission, the performance of the probationer has not been found upto its satisfaction.
- (4) Where the services of a probationer are dispensed with as mentioned in clause (c) above, the probationer shall not be entitled to any compensation for the termination.

Provided that for a person serving in the State Government or the State Public Sector Undertakings and who is selected for appointment in the Commission, the lien in his/her parent department shall cease after three years.

17. Reservation of Vacancy

Vacancies shall be reserved for the candidates belonging to Scheduled Caste and Scheduled Tribe and OBC in accordance with the directives of the State Government in force.

18. Training

- (1) Every Officer may be required to undergo such training or course conducted in-house/ outside as may be prescribed by the Commission.
- (2) The officer who is required to undergo any training or course may be required to execute a bond to serve the Commission for such period as may be prescribed which shall not exceed 12 months for every one month or part of the month of training or course subject to a maximum of two years after completing the training or course. Failure to serve the Commission for the stipulated period will render the candidate liable to refund the amount spent on him for training along with emoluments paid to him during the training period.

Provided also that if an Officer is charged with misconduct during the period of training, then he/she would be called back from training and appropriate disciplinary proceeding would be initiated. He/she may be required to refund the amount spent on him/her for the training, if the Commission so decides.

19. Retirement

Officers/Staff who are regularly appointed in the Commission shall retire from the service of the Commission on attaining the age of superannuation in accordance with the prevailing rules of the State Government.

CHAPTER V REMUNERATION AND OTHER BENEFITS

20. Pay Scale

- (1) The pay scale of the Officers/ Staff shall be as prescribed from time to time.
- (2) The scale of pay of Officers and staff of the Commission shall be revised at par with Officers of corresponding grade/scale under Government of India.

- (3) The Officers and staff of the Commission shall be entitled to DA etc., as admissible to corresponding grade of officers/staff under the Government of India.
- (4) The house rent allowance and the conveyance allowance will be reimbursed to the entitled persons at the rates as determined by the Commission from time to time.
- (5) Officers/staff joining on deputation, as well as officers and staff recruited by the Commission, shall be eligible for all types of interest bearing advances as well as non-interest bearing advances as admissible to officers/staff of State Government.
- (6) Officers/supporting staffs joining on deputation are eligible for deputation allowance at following rates (i) within the same station, 15% of basic pay subject to maximum of Rs.3000/- per month, and (ii) in other cases, 20% of basic pay subject to maximum of Rs.4000/- per month.

21. Subscription to the Provident Fund

The officers and the staff of the Commission will be eligible to subscribe to the General Provident Fund of the State Government with effect from the date of joining in the Commission as applicable to the officers/staff under the State Government.

22. Retirement Benefits

- (1) The pensionary and other benefits will be sanctioned and paid by the Commission.
- (2) The pensionary services rendered by an Officer/ Staff under the Government of India, the State Government and Public Sector Undertakings prior to the date of joining in the Commission shall be taken into account for the purpose of grant of the pensionary and other retirement benefits together with the service rendered by them under the Commission after joining the Commission. The services rendered under the State or Central Government of such officer and staff shall be deemed to be service under the Commission for the purpose of pensionary and other retirement benefits.

23. Service Continuity

- (1) The period of service of the personnel under the Government of India, the State Government or Public Sector Undertakings, as the case may be, shall be treated as continuous for the purpose of all service benefits.
- (2) The personnel joining the service of the Commission on transfer or otherwise from the Government of India, the State Government or Public Sector Undertakings shall be deemed to have entered into an agreement with the Commission or the respective nominated authority, as the case may be, to repay the loans, advance and other sums due or otherwise perform the obligations undertaken by them to the Government of India, the State Government or Public Sector Undertakings which remain outstanding against him on the date of joining as per the original terms and conditions.

24. Contract Service

To obtain experienced and qualified candidates, the posts mentioned in para 4(i)(a) may be filled-up on contract basis for a maximum period of three years.

25. Relaxation of Regulations

The Commission may in the public interest and after recording the reasons in writing, relax the provisions of these regulations, including the eligibility criteria for appointments to posts, in appropriate cases.

26. Applicability of CCA and Conduct Rules

The provisions of the State Civil Services (Classification, Control and Appeal) Rules 19__ and State Civil Services Conduct Rules 19__ as applicable to the employees of the State Government, as amended from time to time, shall be applicable to the employees of the Commission.

27. Competent Authority

The appointing authority, disciplinary authority, appellate authority and reviewing authority, in respect of the officers and employees of the Commission, until otherwise determined by the Commission, shall be as specified in *Appendix III*.

28. Application of the State Service Regulation

In respect of any service matter not specifically mentioned in the above regulations, the employees of the Commission are to be governed by the service regulation of Nagaland State Government employees.

29. Interpretation

If any question arises relating to the interpretation of these regulations, the interpretation of the Chairperson of Nagaland Electricity Regulatory Commission may be treated as final.

30. Power to Remove Difficulties

The State Government may by order make such provisions or give such directions as it may deem necessary for the removal of any difficulty that may arise in giving effect to the provisions of these regulations.

By order of the Governor of Nagaland
Secretary, Department of Power

Appendix - I

QUALIFICATIONS FOR OFFICERS OF THE COMMISSION

Name of the Post	Minimum Required Qualification	Additional Qualifications
1. Commission Secretary	<ul style="list-style-type: none"> a. Degree from a recognised university b. 20 years Engineering or 15 years-administrative experience out of which 5 years at the management level. c. Demonstrated ability to resolve complex tasks. d. Significant professional experience in managing staff, budget and projects. e. Excellent written and verbal communication skills. 	<ul style="list-style-type: none"> a. Work experience in a government organisation. b. Knowledge or experience in a regulated industry or with a regulatory body in Power Sector.
2. Director (Engineering)	<ul style="list-style-type: none"> a. Degree in electrical/ power Engineering. b. 20 years of engineering experience with at least five years at management level in large power utilities with generation, transmission & distribution facilities. c. Good written and verbal communication skills. 	<ul style="list-style-type: none"> a. Experience in Setting up and critically reviewing of performance standards. b. Good knowledge of Electricity Laws.
3. Director (Law)	<ul style="list-style-type: none"> a. Degree in law from a recognised university/ law school. b. Eligibility to practice law. c. 15 years of professional experience or similar experience under Central/ State Government/ Judge of a District Court. d. Excellent written and verbal communication skills. e. Specialisation on the subject of commercial laws. 	<ul style="list-style-type: none"> a. Knowledge in power sector. b. Experience in providing legal advice on commercial issues. c. Experience in related litigation in court. d. Experience in drafting statutes and/ or regulations. e. Experience in contract and/ or administrative law.
4. Director (Tariff)	<ul style="list-style-type: none"> a. Doctorate in economics or Degree in Electrical/ Power Engineering. b. Fifteen years experience as a Professional Economist or a Professional Engineer, of which at least five years he shall have in managing professional staff. c. Experience in the development of tariffs in public utilities. d. Demonstrated ability in Economic Analysis, modeling and Statistical techniques. 	<ul style="list-style-type: none"> a. Experience in commercial Enterprises. b. Demonstrated capability in analytical modeling. c. Good written and verbal communication skills. d. Experience in Power Sector.
5. Director (Admn.)	<ul style="list-style-type: none"> a. Degree from a recognised university. b. 15 years experience in administrative post at management level dealing with Human Resources Development and for Personnel. c. Excellent written and verbal communication skills. 	<ul style="list-style-type: none"> a. Experience in managing a government organisation. b. Knowledge of Computer Systems. c. Knowledge of government accounting and budget procedure.
6. Adviser to the Commission	<ul style="list-style-type: none"> a. Degree from a recognised university. b. Experience and expertise in the fields of Electrical Engineering, Law, Finance, Economics and Administration. c. Excellent written and verbal communication skills. 	<ul style="list-style-type: none"> a. Experience in Power Sector.
7. Deputy Director (Engineering)	<ul style="list-style-type: none"> a. Degree in electrical/ Power Engineering. b. years experience with a large power utility with generation, transmission and distribution facilities. c. Direct operational experience in generation, transmission and distribution. d. Good written and verbal communication skills. 	<ul style="list-style-type: none"> a. Experience in commercial issues, power purchase agreements, and/ or electricity laws. b. Familiarity with electricity tariff issues. c. Knowledge of economics.

8. Deputy Director (Tariff/Accounts & Financial Analysis)	<ul style="list-style-type: none"> a. Degree in Accounting/Commerce, Cost Accountant or Chartered Accountant. b. Five years of professional experience in accounting and/ or finance. c. Demonstrated capability in analysis of company accounts, financial analysis, modeling including spreadsheet and database skills. 	<ul style="list-style-type: none"> a. Good written and verbal communication skills. b. Knowledge of microeconomics. c. Knowledge and/or experience in the power sector. d. Membership in an accountancy organisation of good standing.
9. Deputy Director (Tariff/Economics)	<ul style="list-style-type: none"> a. Degree in Economics with specialization in micro-economics from a recognised university. b. Five years of professional experience as an economist with either a government department or commercial enterprise. c. Demonstrated capability in economic analysis, modelling and spreadsheet and database skills. 	<ul style="list-style-type: none"> a. Good written and verbal communication skills. b. Knowledge of accounting and principles of finance. c. Knowledge and/ or experience in the power sector.
10. Deputy Director (Tariff/ Engineering)	<ul style="list-style-type: none"> a. Degree in Electrical / Power Engineering. b. 5 years of professional experience in Power Sector at the Managerial level in large power utilities with Generation, Transmission, and Distribution facilities. 	<ul style="list-style-type: none"> a. Good Written and verbal communication skills. b. Knowledge of accounting. c. Experience in development of tariffs in Power Sector utilities.
11. Deputy Director (Information Technology)	<ul style="list-style-type: none"> a. Degree in Electrical or Computer Engineering or Post Graduate degree in Computer Science. b. Five years experience in information technology management. c. Good written and verbal communication skills. 	
12. Deputy Director (Personnel)	<ul style="list-style-type: none"> a. Degree from any recognised University. b. years of professional experience in personnel management and administrative matters. c. Excellent interpersonal and communication skills. 	<ul style="list-style-type: none"> a. Experience in a government organization. b. Knowledge of Power Sector reform efforts in India.
13. Deputy Director (Pay and Accounts)	<ul style="list-style-type: none"> a. Chartered Accountant with 5 years experience or a person qualified in SAS examination or a person with minimum five years service in Nagaland Finance Service. b. 5 years experience with managing office budgets and payroll in the context of GOCG or GOI. 	<ul style="list-style-type: none"> a. Degree from any recognised University. b. Demonstrated Computer Skills, especially spreadsheet and database skills. c. Good written and verbal communication skills.
14. Public Affairs Officer	<ul style="list-style-type: none"> a. Degree in a relevant discipline such as Mass communication, journalism or Business economics from a recognised university. b. years of journalism (press, T.V., or Radio) or public relations experience. c. Excellent written and oral communication skills. d. Background in financial or economic writing/ analysis. e. Computer skills, especially word-processing, database and presentation programme. 	<ul style="list-style-type: none"> a. Direct experience in two or more forms of media (Press, T.V., Radio, Multimedia). b. Knowledge of electricity industry. c. Experience in writing corporate annual reports. d. Experience in preparing and delivering public presentations.

Appendix - II

QUALIFICATIONS FOR SUPPORTING STAFF

1. Private Secretary

- (a) Must be a Graduate in any discipline from a recognised University.
- (b) Must have worked as P.A. under any Heads of the Department in Government or Public Sector undertakings for at least 3 years and must have an experience of 15 years in regular service. He/ she should have or should be able to acquire within three months good knowledge in Word Processing in Computer.

2. Personal Assistant

- (a) Must be a Graduate in any discipline from a recognised University.
- (b) Must have worked as Senior Stenographer under any Heads of the Department in Government or Public Sector undertakings for at least 9 years and must have an experience of 12 years in regular service. He/ she should have or should be able to acquire within three months good knowledge in Word Processing in Computer.

3. Accountant

- (a) Must be a Commerce Graduate from a recognised University.
- (b) Must have 5 years experience in Accounting Procedures in any Government/ Public Sector Organisations.
- (c) Must have exposure to Computer Operation.

4. Security Officer

Must be Graduate in any discipline of recognised university or with good physique and with 5-year experience in Government/ Public Sector Undertakings in Security operations or a retired JCO of armed forces not exceeding 52 years of age.

5. Cashier

- (a) Must be a Commerce Graduate from a recognised University.
- (b) Must have 3 years experience in Accounting Procedures in any Government/ Public Sector Organisations.
- (c) Must have exposure to Computer Operation.

6. Steno-cum-Computer Operator

- (a) Must be a Graduate in any discipline from a recognised University.
- (b) Must have a Diploma in Computer Application, or certificate course in DTP, and sufficient experience in data entry, spreadsheets and must have good knowledge and operational experience in MS Windows.

- (c) Must be able to type minimum 40 words per minute in computer and be able to take shorthand dictation with a minimum speed of 80 words per minute.
- (d) Should have adequate exposure in noting, drafting and disposal of cases involving legal, commercial and technical matters.
- (e) Must have experience in stenography and computer operation of one year.

7. Librarian

- (a) Must have a Degree/Diploma in Library Science.
- (b) Must have 2 years experience as a librarian.

8. Receptionist/Telephone Operator/Caretaker

- (a) Must be a graduate in any discipline from a recognised University.
- (b) Must have basic knowledge in computer operation and should have experience in reception, care-taking EPABX, inter-com connections.
- (c) Should have worked in Government/Public Sector Undertakings/reputed firms.

9. Messenger/Group D

Must be able to read and write local language and English having good physique and should possess a license to drive a two-wheeler.

10. Watchman/Security Guards

Must have passed Intermediate or Equivalent and must have good physique with experience in Security Operations for One Year or Ex-service man.

11. Attendant

Should have passed 10th class and know cycling. Having a light vehicle licence and experience in driving cars will be an additional qualification.

12. Driver

Should have a Light Vehicle License and experience of 3 years in driving Cars. He must have sufficient knowledge about traffic rules, maintenance of the vehicles and should be able to undertake minor repair works required for normal running of the vehicles. His eyesight should be normal. He should have sound health.

Appendix - III

COMPETENT AUTHORITY FOR PUNISHMENT AND APPEALS

In case of officers and employees included in Regulation 4(1)(a)

- I. Appointing Authority: Chairperson
- II. Disciplinary Authority: Chairperson
- III. Appellate Authority: Chairperson
- IV. Reviewing Authority: Chairperson

In case of officers and employees included in Regulation 4(1)(b)

- I. Appointing Authority: Director (Administration)
- II. Disciplinary Authority: Director (Administration)
- III. Appellate Authority: Chairperson
- IV. Reviewing Authority: Chairperson

Annex to Chapter 10

Annex 10.1: Tips for Energy Savings

Lighting System	
01.	One of the best energy-saving devices is the light switch. Turn off lights when not required.
02.	Many automatic devices can help in saving energy used in lighting. Consider employing infrared sensors, motion sensors, automatic timers, dimmers and solar cells wherever applicable, to switch on/off lighting circuits.
03.	As far as possible use task lighting, which focuses light where it's needed. A reading lamp, for example, lights only reading material rather than the whole room.
04.	Dirty tube lights and bulbs reflect less light and can absorb 50 percent of the light; dust your tube lights and lamps regularly.
05.	Fluorescent tube lights and CFLs convert electricity to visible light up to 5 times more efficiently than ordinary bulbs and thus save about 70% of electricity for the same lighting levels.
06.	Ninety percent of the energy consumed by an ordinary bulb (incandescent lamp) is given off as heat rather than visible light.
08.	Replace your electricity-guzzling ordinary bulbs (incandescent lamps) with more efficient types. Compact fluorescent lamps (CFLs) use up to 75 percent less electricity than incandescent lamps.
09.	A 15-watt compact fluorescent bulb produces the same amount of light as a 60-watt incandescent bulb.
Room Air Conditioners	
01.	Use ceiling or table fan as first line of defence against summer heat. Ceiling fans, for instance, cost about 30 paise an hour to operate - much less than air conditioners (Rs.10.00 per hour).
02.	You can reduce air-conditioning energy use by as much as 40 percent by shading your home's windows and walls. Plant trees and shrubs to keep the day's hottest sun off your house.
03.	One will use 3 to 5 percent less energy for each degree air conditioner is set above 22°C (71.5°F), so set the thermostat of room air conditioner at 25°C (77°F) to provide the most comfort at the least cost.
04.	Using ceiling or room fans allows you to set the thermostat higher because the air movement will cool the room.
05.	A good air conditioner will cool and dehumidify a room in about 30 minutes, so use a timer and leave the unit off for some time.
06.	Keep doors to air-conditioned rooms closed as often as possible.
07.	Clean the air-conditioner filter every month. A dirty air filter reduces airflow and may damage the unit. Clean filters enable the unit to cool down quickly and use less energy.
08.	If room air conditioner is older and needs repair, it's likely to be very inefficient. It may work out cheaper on life cycle costing to buy a new energy-efficient air conditioner.
Refrigerators	
01.	Make sure that refrigerator is kept away from all sources of heat, including direct sunlight, radiators and appliances such as the oven, and cooking range. When it's dark, place a lit flashlight inside the refrigerator and close the door. If light around the door is seen, the seals need to be replaced.
02.	Refrigerator motors and compressors generate heat, so allow enough space for continuous

	airflow around refrigerator. If the heat can't escape, the refrigerator's cooling system will work harder and use more energy.
03.	A full refrigerator is a fine thing, but be sure to allow adequate air circulation inside.
04.	Think about what you need before opening refrigerator door. You'll reduce the amount of time the door remains open.
05.	Allow hot and warm foods to cool and cover them well before putting them in refrigerator. Refrigerator will use less energy and condensation will be reduced.
06.	Make sure that refrigerator's rubber door seals are clean and tight. They should hold a slip of paper snugly. If paper slips out easily, replace the door seals.
07.	When dust builds up on refrigerator's condenser coils, the motor works harder and uses more electricity. Clean the coils regularly to make sure that air can circulate freely.
08.	For manual defrost refrigerator, accumulation of ice reduces the cooling power by acting as unwanted insulation. Defrost freezer compartment regularly for a manual defrost refrigerator.
Water Heater	
01.	To help reduce heat loss, always insulate hot water pipes, especially where they run through unheated areas. Never insulate plastic pipes.
02.	By reducing the temperature setting of water heater from 60 degrees to 50 degrees C, one could save over 18 percent of the energy used at the higher setting.
Microwave Ovens & Electric Kettles	
01.	Microwaves save energy by reducing cooking times. In fact, one can save up to 50 percent on your cooking energy costs by using a microwave oven instead of a regular oven, especially for small quantities of food.
02.	Remember, microwaves cook food from the outside edge toward the centre of the dish, so if you're cooking more than one item, place larger and thicker items on the outside.
03.	Use an electric kettle to heat water. It's more energy efficient than using an electric cook top element.
04.	When buying a new electric kettle, choose one that has an automatic shut-off button and a heat-resistant handle.
05.	It takes more energy to heat a dirty kettle. Regularly clean your electric kettle by combining boiling water and vinegar to remove mineral deposits.
06.	Don't overfill the kettle for just one drink. Heat only the amount of water you need.
Computers	
01.	Turn off your home office equipment when not in use. A computer that runs 24 hours a day, for instance, uses more power than an energy-efficient refrigerator.
02.	If your computer must be left on, turn off the monitor; this device alone uses more than half the system's energy.
03.	Setting computers, monitors, and copiers to use sleep-mode when not in use helps cut energy costs by approximately 40%.
04.	Battery chargers, such as those for laptops, cell phones and digital cameras, draw power whenever they are plugged in and are very inefficient. Pull the plug and save.
05.	Screen savers save computer screens, not energy. Start-ups and shutdowns do not use any extra energy, nor are they hard on your computer components. In fact, shutting computers down when you are finished using them actually reduces system wear - and
Source: Bureau of Energy Efficiency	